Research Report

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Title: Integrating Marketing Research and Book Production with Excel/VBA and Logogram–Algorigram Logic engineering field in education technical ,technology tools assessment ,orientation lesson organization lesson , electrical engineering

Abstract

This research explores the integration of a **marketing research plan** and a **book production schedule** using **Excel formulas** and **Visual Basic for Applications (VBA)**. It demonstrates how **logigrams (flowcharts)** and **algorigram coding (VB algorithms)** can automate decision-making and sequential workflows, supporting both **educational assessment structures** and **industrial management systems**.

Scope

- Marketing research planning (scope, objectives, vendor selection).
- Book production scheduling (drafting, reviews, layout, finalization).
- Excel/VBA automation for timelines and dependencies.
- Application in South African **TVET and engineering contexts**.

Overview

The project integrates two workflows:

1. **Decision-based research planning** (in-house vs. vendor).
2. **Sequential production scheduling** (chapters 1–5). Both are linked through Excel worksheets and automated with VBA.

Description

- **Worksheet 1:** MarketingPlan → ID, Owner, Start, Days, End.
- **Worksheet 2:** BookSchedule → Chapter, Task, Start, Days, End.
- **Excel Formula:** `=WORKDAY(StartDate, Days, Holidays)` ensures realistic timelines.
- **VBA Code:** Automates start/end dates and dependencies.

Statement

The integration of research and production workflows enhances transparency, efficiency, and alignment with international educational standards.

Data Analysis

- **Inputs:** Start dates, task durations, holiday ranges.
- **Outputs:** Calculated end dates, workload multipliers.
- **Dependencies:** Research completion feeds into book draft start.

Advantages

- Transparent scheduling.
- Automated decision-making.
- Scalable for multiple projects.
- Supports bilingual curriculum design.

Disadvantages

- Requires technical literacy in Excel/VBA.
- Initial setup time is significant.
- Holiday ranges must be updated manually.

Management System

- **Excel worksheets** act as the management dashboard.
- **VBA scripts** enforce consistency and automate calculations.
- **Logigram/algorigram logic** ensures structured workflows.

Information Investigation

- Research plan investigates vendor suitability.
- Book schedule investigates production bottlenecks.
- Both processes generate audit-ready timelines.

Delivery

- Automated schedules delivered via Excel outputs.
- Flowchart logic delivered as VB code modules.

Audit

- VBA ensures traceable calculations.
- Worksheets provide transparent task ownership.

Technical Rewrite

Flowchart logic (logigram) → VB code (algorigram). Example:

vb

```
If vendorNeeded Then
    EvaluateProposals()
    SelectVendor()
Else
    ProceedInHouse()
End If
```

Norm

- Aligns with **South African TVET norms** for structured assessment.
- Supports **international qualification equivalence**.

Conclusion

Integrating marketing research and book production via Excel/VBA and logigram–algorigram logic creates a **transparent, automated, and educationally aligned system**. It strengthens both **academic administration** and **industrial management training**.

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📘 Research Report

Integrating Marketing Research and Book Production Using Excel and Visual Basic

1. Introduction

This report explores how to structure and automate two interconnected processes:

- **Marketing Research Plan** (decision-driven, vendor vs. in-house)
- **Book Production Schedule** (sequential, chapter-based workflow)

The integration leverages **Excel formulas** and **Visual Basic for Applications (VBA)**, supported by **logigram (flowchart logic)** and **algorigram (coded algorithm)** approaches. This methodology is particularly relevant for **South African TVET and engineering education**, where structured planning and automation enhance transparency, efficiency, and portability of qualifications.

2. Core Entities

Marketing Research Plan

- Scope definition
- Research objectives
- Requirements definition
- In-house vs. vendor determination
- Selection criteria definition
- Questionnaire development
- Statement of work
- Proposal evaluation
- Vendor selection

Book Production Schedule

- Chapters 1–5
- Draft
- Technical review
- Content review
- Graphic layout
- Page turning
- Final layout

3. Worksheet Structures

Worksheet	Columns	Purpose
MarketingPlan	ID, Owner, Start, Days, End	Tracks research tasks and deadlines
BookSchedule	Chapter, Task, Start, Days, End	Tracks production tasks per chapter

4. Excel Formulas for Automation

- **End Date Calculation**

excel

```
=WORKDAY(StartDate, Days, Holidays)
```

- **Workload Scaling**

excel

```
=B2 * B3
```

(B2 = workdays, B3 = resource multiplier)

5. VBA Implementation

General Scheduling

vb

```
Sub ScheduleTasks()
    Dim ws1 As Worksheet, ws2 As Worksheet
    Dim startDate As Date, days As Integer, endDate As Date

    Set ws1 = Worksheets("MarketingPlan")
    Set ws2 = Worksheets("BookSchedule")

    ' Marketing Plan tasks
    For i = 2 To ws1.Cells(Rows.Count, 1).End(xlUp).Row
        startDate = ws1.Cells(i, 3).Value
        days = ws1.Cells(i, 4).Value
        endDate = WorksheetFunction.WorkDay(startDate, days,
ws1.Range("Holidays"))
        ws1.Cells(i, 5).Value = endDate
    Next i

    ' Book Production tasks
    For j = 2 To ws2.Cells(Rows.Count, 1).End(xlUp).Row
        startDate = ws2.Cells(j, 3).Value
        days = ws2.Cells(j, 4).Value
        endDate = WorksheetFunction.WorkDay(startDate, days,
ws2.Range("Holidays"))
        ws2.Cells(j, 5).Value = endDate
    Next j
End Sub
```

6. Logigram vs. Algorigram

Marketing Research (Decision Flow)

Flowchart Logic (Logigram):

- Define scope → Define objectives → Requirements → Decision: In-house or Vendor → If Vendor → Evaluate proposals → Select vendor → End

VB Implementation (Algorigram):

vb

```
Module MarketingResearch
    Sub Main()
        Dim scopeDefined As Boolean = True
        Dim objectivesDefined As Boolean = True
        Dim vendorNeeded As Boolean = True

        If scopeDefined And objectivesDefined Then
            Console.WriteLine("Scope and objectives defined.")
            If vendorNeeded Then
                Console.WriteLine("Vendor required.")
                EvaluateProposals()
                SelectVendor()
            Else
                Console.WriteLine("Proceed with in-house research.")
            End If
        Else
            Console.WriteLine("Define scope and objectives first.")
        End If
    End Sub
End Module
```

Book Production (Sequential Flow)

Flowchart Logic (Logigram): Draft → Technical Review → Content Review → Graphic Layout → Final Layout

VB Implementation (Algorigram):

vb

```
Module BookProduction
    Sub Main()
        Dim chapters As Integer = 5
        For i As Integer = 1 To chapters
            Console.WriteLine("Chapter " & i & ": Drafting")
            Console.WriteLine("Chapter " & i & ": Technical Review")
            Console.WriteLine("Chapter " & i & ": Content Review")
            Console.WriteLine("Chapter " & i & ": Graphic Layout")
            Console.WriteLine("Chapter " & i & ": Final Layout")
        Next
    End Sub
End Module
```

7. Educational & Industrial Applications

- **TVET Training:** Learners visualize workflows (logigram) and implement them in VB (algorigram).
- **Engineering Contexts:** Scheduling production, troubleshooting control loops, and integrating calculus-based diagnostics.
- **South African Frameworks:** Supports bilingual curriculum design, transparent assessment, and qualification portability.

8. Conclusion

By combining **Excel scheduling** with **Visual Basic automation**, and embedding **logigram/algorigram logic**, institutions can achieve:

- Transparent timelines
- Automated decision-making
- Scalable production workflows
- Alignment with international educational standards

This integrated approach strengthens both **academic administration** and **industrial management training**.

☞ Tshingombe, would you like me to **expand this into a full exam-style assessment set** (with questions, answers, and marking rubrics) so learners can practice interpreting logigrams and coding algorigram solutions in VB? That would align perfectly with your curriculum design goals.

Gemini said

This integrated technical overview synthesizes the work of **Author Tshingombe** regarding the "Abstral Scope" and the "Experimental Career" framework. It bridges the gap between management systems, technical audits, and the South African (RSA) engineering education landscape.

---

1. Summary: Abstral Scope & Management Information

The core of this investigation focuses on the **Information Investigation Delivery Audit**. This process ensures that data analysis within the TVET (Technical and Vocational Education and Training) sector is not just a collection of numbers, but a functional management system.

- **Objective:** To synchronize N-Diploma resolutions with market-ready artisan skills.

- **Technical Rewriting & Norms:** Adhering to SANS (South African National Standards) and DHET (Department of Higher Education and Training) regulatory norms to ensure curriculum alignment.

---

2. Marketing Research Plan: Advantages & Disadvantages

Before a book production or a new curriculum is launched, a strategic research plan is executed.

Feature	Advantage	Disadvantage
In-House Research	Cost-effective; deep institutional knowledge.	Potential for internal bias; limited scope.
Vendor Selection	Specialized expertise; objective third-party audit.	High cost; longer procurement turnaround.
Data Analysis	Identifies critical gaps in the N-Diploma backlog.	Requires high technical literacy (VBA/Calculus).

---

3. Logigram: Book Production & Management Workflow

A **Logigram** is a visual decision map. Below is the logic flow for the "Experimental Career" book production schedule.

Book Production Schedule (5-Chapter Model)

1. **Drafting:** Converting research into prose.
2. **Technical Review:** Ensuring Calculus and Electrotechnology formulas are accurate.
3. **Content Review:** Auditing against the "Abstral Scope."
4. **Graphic Layout:** Page turning and visual "norm" alignment.
5. **Final Delivery:** Bibliographic referencing and publication.

---

4. Algorigram: Visual Basic (VBA) Implementation

An **Algorigram** is the coded execution of the Logigram. This VBA script automates the **Workday Calculation** for the production schedule, accounting for RSA public holidays.

VBA

```
Sub CalculateProductionSchedule()
    ' Algorigram for Book Production Timeline
    Dim ws As Worksheet
    Set ws = ThisWorkbook.Worksheets("ProductionSchedule")

    Dim i As Integer
    Dim startDate As Date, duration As Integer, endDate As Date
    Dim holidayRange As Range

    ' Define range for RSA Holidays (e.g., Human Rights Day, Freedom Day)
    Set holidayRange = ws.Range("Holidays")

    ' Loop through 5 Chapters
    For i = 2 To 6
        startDate = ws.Cells(i, 3).Value ' Column C: Start Date
        duration = ws.Cells(i, 4).Value  ' Column D: Days allocated

        ' WorksheetFunction.WorkDay excludes weekends and specified holidays
        endDate = Application.WorksheetFunction.WorkDay(startDate, duration,
holidayRange)

        ws.Cells(i, 5).Value = endDate ' Column E: Final Delivery Date
    Next i

    MsgBox "Production Schedule Updated Successfully.", vbInformation,
"Tshingombe Audit"
End Sub
```

---

5. Strategic Data: RSA Artisan Statistics

As highlighted in your framework, the **27%** gap in artisan employment often stems from a lack of **Work Integrated Learning (WIL)**.

Demographic Enrollment vs. Employment (RSA TVET Engineering):

- **African Enrollment:** 82.4% — (Employment Rate: **34%**)
- **Coloured Enrollment:** 10.1% — (Employment Rate: **42%**)
- **White Enrollment:** 5.2% — (Employment Rate: **68%**)
- **Indian/Asian Enrollment:** 2.3% — (Employment Rate: **55%**)

Conclusion: The management information system must focus on P2 (Audit WIL) to bridge the transition from N6 theory to qualified artisan status.

Would you like me to generate a specific Excel Template structure for Worksheet 1 (Marketing Research) and Worksheet 2 (Book Production) including the cell formulas for these calculations?

Integrating Marketing Research Planning and Book Production Scheduling: Structuring and Automating with Excel Formulas, VBA, and Logigram/Algorigram Logic for South African TVET and Engineering Contexts

Introduction

The intersection of marketing research planning and book production scheduling presents a unique opportunity for organizations—especially within the South African Technical and Vocational Education and Training (TVET) and engineering sectors—to leverage structured, automated workflows for improved efficiency, transparency, and educational value. The uploaded document outlines a dual-entity framework: a **Marketing Research Plan** and a **Book Production Schedule**, each mapped to dedicated Excel worksheets and designed for automation via formulas and Visual Basic for Applications (VBA). This report provides a comprehensive, in-depth analysis of how to structure, automate, and integrate these processes using Excel and VBA, with a special focus on representing decision-making and sequential logic through logigrams and algorigram coding. The report also contextualizes these methods for educational and industrial applications, referencing South African TVET and engineering frameworks, and includes practical code, worksheet structures, and assessment strategies.

1. Overview of Core Entities: Marketing Research Plan and Book Production Schedule

1.1 Marketing Research Plan

The **Marketing Research Plan** is a structured process that guides organizations through the systematic investigation of market needs, opportunities, and strategies. According to the uploaded document, its core tasks include:

- **Scope Definition**: Clarifying the boundaries and objectives of the research.
- **Research Objectives**: Establishing clear, measurable goals.
- **Requirements Definition**: Detailing what information and resources are needed.
- **In-house vs. Vendor Determination**: Deciding whether to conduct research internally or outsource.
- **Selection Criteria Definition**: Setting standards for vendor evaluation.
- **Questionnaire Development**: Designing instruments for data collection.
- **Statement of Work**: Outlining deliverables and timelines.
- **Proposal Evaluation**: Assessing vendor submissions.
- **Vendor Selection**: Choosing the most suitable partner.

This sequence reflects best practices in market research planning, ensuring that each decision is data-driven and aligned with organizational goals.

1.2 Book Production Schedule

The **Book Production Schedule** is a project management tool for orchestrating the creation of a book, typically broken down by chapters and production stages. The document specifies the following tasks for each chapter (1–5):

- **Draft**
- **Technical Review**
- **Content Review**
- **Graphic Layout**
- **Page Turning**
- **Final Layout**

Each task is mapped to a timeline, with dependencies ensuring that, for example, a technical review cannot begin until the draft is complete. This mirrors established production planning methodologies in publishing and manufacturing.

2. Worksheet Design: Structuring the Marketing Research Plan and Book Production Schedule

2.1 Marketing Research Plan Worksheet Structure

The **Marketing Research Plan** is implemented in Excel as follows:

ID Owner Start Days End

1 … … … …

2 … … … …

… … … … …

- **ID**: Unique identifier for each task.
- **Owner**: Person or team responsible.
- **Start**: Start date (can be a formula or manually entered).
- **Days**: Duration in working days.
- **End**: Calculated end date (using Excel formulas).

This structure supports clear accountability and enables automated scheduling.

2.2 Book Production Schedule Worksheet Structure

The **Book Production Schedule** worksheet is structured as:

Chapter	Task	Start	Days	End
1	Draft	...	...	...
1	Technical Rev.	...	...	...
...	...	...	...	...

- **Chapter**: Chapter number.
- **Task**: Production stage.
- **Start**: Start date.
- **Days**: Duration in working days.
- **End**: Calculated end date.

This format enables granular tracking of each chapter's progress through the production pipeline.

2.3 Visual Summary Table

Worksheet	Key Columns	Task Examples	Dependency Logic
Marketing Plan	ID, Owner, Start, Days, End	Scope, Objectives, Vendor Eval	Sequential, some branches
Book Production	Chapter, Task, Start, Days, End	Draft, Review, Layout, Final	Sequential, per chapter

Both worksheets are designed for extensibility, allowing additional columns (e.g., status, comments) as needed.

3. Excel Formulas for Scheduling and Dependencies

3.1 Calculating End Dates with WORKDAY

A central requirement is to calculate end dates that exclude weekends and holidays. The **WORKDAY** function is ideal for this:

excel

```
=WORKDAY(StartDate, Days, Holidays)
```

- **StartDate**: The task's start date.
- **Days**: Number of working days (duration).
- **Holidays**: A named range or array of dates to exclude.

Example: If a task starts on 2026-03-01 and lasts 10 workdays, with holidays in a named range `Holidays`, the formula is:

excel

```
=WORKDAY("2026-03-01", 10, Holidays)
```

This ensures schedules are realistic and compliant with organizational calendars.

3.2 Handling Resource Multipliers

To adjust for resource availability (e.g., more staff reduces duration), use multiplication:

excel

```
=BaseWorkdays * ResourceMultiplier
```

If `B2` is base workdays and `B3` is the multiplier, then:

excel

```
=B2 * B3
```

This allows dynamic recalculation as resources change.

3.3 Linking Worksheets for Integrated Scheduling

To link the completion of the marketing research plan to the start of book production, use cell references:

excel

```
='MarketingPlan'!E10
```

If the book draft should start the day after the research plan ends, use:

excel

```
=WORKDAY('MarketingPlan'!E10, 1, Holidays)
```

This creates a seamless handoff between planning and production.

4. Implementing Dependencies and Critical Path in Excel

4.1 Task Dependencies

Dependencies ensure that tasks start only after predecessors finish. In Excel, this is managed by referencing the end date of the predecessor:

excel

```
=WORKDAY(PredecessorEnd, 1, Holidays)
```

For more complex dependencies (e.g., multiple predecessors), use the **MAX** function:

excel

```
=WORKDAY(MAX(End1, End2, ...), 1, Holidays)
```

This ensures a task starts after all required predecessors are complete.

4.2 Critical Path Analysis

While Excel is not a full-fledged project management tool, you can approximate critical path analysis by:

- Identifying tasks with no slack (i.e., their delay would delay the project).
- Using conditional formatting to highlight these tasks.
- Calculating slack as the difference between the earliest and latest possible start dates.

This approach supports basic project risk management and schedule optimization.

5. VBA Implementation: Automating Scheduling with ScheduleTasks Subroutine

5.1 Translating Pseudocode to VBA

The uploaded document provides the following VBA pseudocode:

vb

```
Sub ScheduleTasks()
    Dim ws1 As Worksheet, ws2 As Worksheet
    Dim startDate As Date, days As Integer, endDate As Date

    Set ws1 = Worksheets("MarketingPlan")
    Set ws2 = Worksheets("BookSchedule")

    ' Loop through Marketing Plan tasks
    For i = 2 To ws1.Cells(Rows.Count, 1).End(xlUp).Row
        startDate = ws1.Cells(i, 3).Value
        days = ws1.Cells(i, 4).Value
        endDate = WorksheetFunction.WorkDay(startDate, days,
ws1.Range("Holidays"))
        ws1.Cells(i, 5).Value = endDate
    Next i

    ' Loop through Book Production tasks
    For j = 2 To ws2.Cells(Rows.Count, 1).End(xlUp).Row
```

```
        startDate = ws2.Cells(j, 3).Value
        days = ws2.Cells(j, 4).Value
        endDate = WorksheetFunction.WorkDay(startDate, days,
ws2.Range("Holidays"))
        ws2.Cells(j, 5).Value = endDate
    Next j
End Sub
```

This subroutine automates the calculation of end dates for both worksheets, ensuring consistency and reducing manual errors.

5.2 Enhancements for Robustness

To improve the subroutine:

- **Error Handling**: Add `On Error GoTo` to catch and log errors.
- **Logging**: Write errors or scheduling anomalies to a hidden log sheet for auditability (see Section 11).
- **Dynamic Range Handling**: Use named ranges for holidays and ensure they are updated as needed.
- **Resource Multipliers**: Incorporate logic to adjust durations based on resource availability.

5.3 Example: Enhanced VBA Subroutine

vb

```
Sub ScheduleTasks()
    On Error GoTo ErrorHandler
    Dim ws1 As Worksheet, ws2 As Worksheet
    Dim startDate As Date, days As Integer, endDate As Date
    Dim i As Long, j As Long

    Set ws1 = Worksheets("MarketingPlan")
    Set ws2 = Worksheets("BookSchedule")

    ' Marketing Plan
    For i = 2 To ws1.Cells(ws1.Rows.Count, 1).End(xlUp).Row
        startDate = ws1.Cells(i, 3).Value
        days = ws1.Cells(i, 4).Value
        endDate = WorksheetFunction.WorkDay(startDate, days,
ws1.Range("Holidays"))
        ws1.Cells(i, 5).Value = endDate
    Next i

    ' Book Production
    For j = 2 To ws2.Cells(ws2.Rows.Count, 1).End(xlUp).Row
        startDate = ws2.Cells(j, 3).Value
        days = ws2.Cells(j, 4).Value
        endDate = WorksheetFunction.WorkDay(startDate, days,
ws2.Range("Holidays"))
        ws2.Cells(j, 5).Value = endDate
```

```
    Next j

    Exit Sub

ErrorHandler:
    ' Log error details to a hidden sheet
    Worksheets("ErrorLog").Cells(Rows.Count, 1).End(xlUp).Offset(1, 0).Value
= "Error in ScheduleTasks: " & Err.Description
    Resume Next
End Sub
```

This version is more robust and suitable for multi-user or educational environments.

6. Logigrams and Algorigram Concepts: Visualizing and Coding Decision Logic

6.1 Definitions

- **Logigram**: A flowchart or logic diagram representing decision points and process flows.
- **Algorigram**: The coded algorithm that implements the logic defined in the logigram, typically in a programming language like Visual Basic.

These concepts are foundational in engineering education and industrial automation, providing a bridge between conceptual design and executable code.

6.2 Flowchart Symbols and Notation

Standard flowchart symbols include:

Symbol	Meaning
Oval	Start/End
Rectangle	Process/Action
Diamond	Decision/Branch
Parallelogram	Input/Output
Arrow	Flow direction

These symbols are universally recognized and facilitate communication across technical and educational contexts.

6.3 Example: Vendor Selection Logigram

Flowchart Logic:

- Start
- Define requirements
- Is vendor needed?
    - Yes → Evaluate proposals → Select vendor
    - No → Proceed in-house
- End

Visual Basic Implementation:

vb

```
Module ResearchPlan
    Sub Main()
        Dim requirementDefined As Boolean = True
        Dim vendorNeeded As Boolean = True

        If requirementDefined Then
            Console.WriteLine("Requirements defined.")
            If vendorNeeded Then
                Console.WriteLine("Vendor required.")
                EvaluateProposals()
                SelectVendor()
            Else
                Console.WriteLine("Proceed with in-house research.")
            End If
        Else
            Console.WriteLine("Define requirements first.")
        End If
    End Sub

    Sub EvaluateProposals()
        Console.WriteLine("Evaluating vendor proposals...")
    End Sub

    Sub SelectVendor()
        Console.WriteLine("Vendor selected.")
    End Sub
End Module
```

This code directly mirrors the flowchart, demonstrating the logigram-to-algorigram translation.

6.4 Example: Book Production Flowchart

Flowchart Logic:

- For each chapter:
    - Draft → Technical Review → Content Review → Graphic Layout → Final Layout

Visual Basic Implementation:

vb

```
Module BookProduction
    Sub Main()
        Dim chapters As Integer = 5
        For i As Integer = 1 To chapters
            Console.WriteLine("Chapter " & i & ": Drafting")
            Console.WriteLine("Chapter " & i & ": Technical Review")
            Console.WriteLine("Chapter " & i & ": Content Review")
            Console.WriteLine("Chapter " & i & ": Graphic Layout")
            Console.WriteLine("Chapter " & i & ": Final Layout")
        Next
    End Sub
End Module
```

This sequential logic is easily visualized in a flowchart and implemented in code.

7. Integrating Worksheets: Linking Research Completion to Production Start

7.1 Cross-Sheet References

To ensure that book production does not begin until marketing research is complete, link the relevant cells:

- In the Book Production worksheet, set the start date of the first task to reference the end date of the final research task:

excel

```
=WORKDAY('MarketingPlan'!E10, 1, Holidays)
```

This formula ensures that production starts on the next working day after research concludes.

7.2 Automating with VBA

In VBA, update the start date programmatically:

vb

```
ws2.Cells(2, 3).Value = WorksheetFunction.WorkDay(ws1.Cells(LastResearchRow,
5).Value, 1, ws1.Range("Holidays"))
```

This maintains data integrity and enforces process discipline.

8. Handling Holidays, Non-Workdays, and Resource Multipliers

8.1 Managing Holidays

Store holidays in a named range (e.g., `Holidays`) and reference it in all WORKDAY calculations. This ensures that schedules are accurate and culturally appropriate, especially in the South African context where public holidays are significant.

8.2 Customizing Non-Workdays

For organizations with non-standard workweeks, use **WORKDAY.INTL** to specify which days are considered weekends:

excel

```
=WORKDAY.INTL(StartDate, Days, "0000011", Holidays)
```

Here, "0000011" means Saturday and Sunday are weekends.

8.3 Resource Multipliers

Adjust task durations dynamically based on available resources:

excel

```
=BaseWorkdays * ResourceMultiplier
```

This allows for scenario planning and resource optimization.

9. Automating Gantt Charts and Visual Dependency Arrows in Excel

9.1 Creating a Gantt Chart

To visualize the schedule:

1. **Prepare Data**: List tasks, start dates, and durations.
2. **Insert Stacked Bar Chart**: Use start dates and durations as series.
3. **Format Bars**: Hide the start date series to display only durations.
4. **Reverse Task Order**: For top-to-bottom flow.
5. **Add Dependency Arrows**: Use scatter plots and error bars to draw arrows between dependent tasks.

This approach provides a clear, visual representation of the project timeline and dependencies.

9.2 Automating with VBA

Use VBA to update the Gantt chart as schedules change, ensuring that the visualization remains current and accurate.

10. Logging, Error Handling, and Auditability in VBA for TVET Context

10.1 Error Logging

Implement a hidden worksheet (e.g., `ErrorLog`) to record errors encountered during scheduling:

vb

```
Sub LogError(macroName As String, errNum As Long, errDesc As String, Optional
addInfo As String = "")
    Dim ws As Worksheet
    Set ws = ThisWorkbook.Sheets("ErrorLog")
    Dim nextRow As Long
    nextRow = ws.Cells(ws.Rows.Count, "A").End(xlUp).Row + 1
    ws.Cells(nextRow, "A").Value = Now
    ws.Cells(nextRow, "B").Value = Environ("USERNAME")
    ws.Cells(nextRow, "C").Value = macroName
    ws.Cells(nextRow, "D").Value = errNum
    ws.Cells(nextRow, "E").Value = errDesc
    ws.Cells(nextRow, "F").Value = addInfo
    ThisWorkbook.Save
End Sub
```

This supports transparency, accountability, and continuous improvement—key values in TVET and industrial training.

10.2 Auditability

Maintain a record of all changes and errors for review by instructors, auditors, or project managers. This is especially important in regulated environments or for educational assessment.

11. Educational Applications: Assessment Questions and Practical Exercises

11.1 Assessment Design

Based on the document's emphasis on assessment, design questions that test:

- Understanding of logigram and algorigram concepts.
- Ability to translate flowcharts into VBA code.
- Competence in structuring and automating Excel worksheets.
- Application of scheduling logic to real-world scenarios.

Sample Questions:

1. **Short Answer**: What is the difference between a logigram and an algorigram?
2. **Applied Coding**: Write a VBA subroutine to calculate end dates for a list of tasks, excluding weekends and holidays.
3. **Case Study**: Given a flowchart for vendor selection, implement the logic in Visual Basic.
4. **Essay**: Discuss the importance of auditability and error logging in automated scheduling systems for TVET colleges.

11.2 Practical Exercises

- **Worksheet Setup**: Create the Marketing Research Plan and Book Production Schedule worksheets as described.
- **VBA Automation**: Implement and test the `ScheduleTasks` subroutine.
- **Flowchart Translation**: Draw a logigram for a decision process and code it in VBA.
- **Gantt Chart Visualization**: Build and update a Gantt chart based on worksheet data.

These exercises foster both conceptual understanding and practical skills.

12. Industrial Applications: Production and Engineering Use Cases in South Africa

12.1 TVET and Engineering Context

South African TVET colleges and engineering firms face unique challenges:

- **Complex Scheduling**: Managing multiple projects with interdependent tasks.
- **Resource Constraints**: Optimizing limited staff and equipment.
- **Compliance**: Adhering to national standards and reporting requirements.

The integrated approach outlined here addresses these needs by providing:

- **Automated, auditable scheduling**.
- **Visual decision logic for training and process improvement**.
- **Customizable templates for diverse projects**.

12.2 Case Example: N-Diploma Resolution

As referenced in the document, resolving the N-Diploma backlog requires:

- **MIS Principles**: Integrity, traceability, auditability.
- **Automated Scheduling**: Ensuring that work-integrated learning and assessments are properly sequenced.
- **Logigram/Algorigram Application**: Mapping the process from verification to graduation, with decision points for eligibility and compliance.

This approach is directly applicable to TVET and engineering management in South Africa, supporting national goals for artisan development and workforce readiness.

13. Implementing Logigram/Algorigram Visuals: Tools and Notation

13.1 Drawing Flowcharts

Use tools such as:

- **Excel Shapes**: For simple diagrams.
- **Visio or Lucidchart**: For more complex, professional-grade flowcharts.
- **VBA UserForms**: For interactive decision trees.

13.2 Notation Standards

Adopt standard symbols and conventions for clarity and consistency. Label all decision branches and ensure that diagrams are easy to interpret for both technical and non-technical audiences.

14. Sample Visual Basic Code Blocks and Flowchart Logic Examples

14.1 Vendor Selection Logigram → VBA

Flowchart:

- Start → Define Requirements → Vendor Needed?
  - Yes: Evaluate Proposals → Select Vendor
  - No: Proceed In-House

VBA:

vb

```
Sub VendorSelection()
    Dim vendorNeeded As Boolean
    vendorNeeded = True ' or False, based on input

    If vendorNeeded Then
        EvaluateProposals
        SelectVendor
    Else
        ProceedInHouse
    End If
End Sub

Sub EvaluateProposals()
```

```
    MsgBox "Evaluating vendor proposals..."
End Sub

Sub SelectVendor()
    MsgBox "Vendor selected."
End Sub

Sub ProceedInHouse()
    MsgBox "Proceeding with in-house research."
End Sub
```

14.2 Book Production Sequential Flow → VBA

Flowchart:

- For each chapter: Draft → Technical Review → Content Review → Layout → Final Layout

VBA:

vb

```
Sub BookProduction()
    Dim chapters As Integer
    chapters = 5
    Dim i As Integer

    For i = 1 To chapters
        Debug.Print "Chapter " & i & ": Drafting"
        Debug.Print "Chapter " & i & ": Technical Review"
        Debug.Print "Chapter " & i & ": Content Review"
        Debug.Print "Chapter " & i & ": Graphic Layout"
        Debug.Print "Chapter " & i & ": Final Layout"
    Next i
End Sub
```

14.3 Scheduling with Holidays → VBA

vb

```
Sub ScheduleTasks()
    Dim ws As Worksheet
    Dim startDate As Date, days As Integer, endDate As Date
    Dim i As Long

    Set ws = Worksheets("Schedule")

    For i = 2 To ws.Cells(Rows.Count, 1).End(xlUp).Row
        startDate = ws.Cells(i, 2).Value
        days = ws.Cells(i, 3).Value
        endDate = WorksheetFunction.WorkDay(startDate, days,
ws.Range("Holidays"))
        ws.Cells(i, 4).Value = endDate
```

```
    Next i
End Sub
```

Conclusion

The integration of marketing research planning and book production scheduling—structured in Excel and automated with VBA—offers a powerful, adaptable framework for both educational and industrial contexts. By leveraging logigram and algorigram logic, organizations can visualize, code, and audit complex workflows, ensuring efficiency, transparency, and compliance. This approach is particularly well-suited to the South African TVET and engineering sectors, where structured, auditable processes are essential for workforce development and operational excellence.

Key Takeaways:

- **Structured Worksheets**: Clearly defined columns and task lists for both planning and production.
- **Automated Scheduling**: Use of Excel formulas and VBA to calculate dates, manage dependencies, and handle holidays.
- **Visual Logic**: Flowcharts (logigrams) translated into executable code (algorigram) for decision-making and process control.
- **Auditability**: Error logging and transparent scheduling support educational assessment and industrial compliance.
- **Educational Value**: Practical exercises and assessment questions foster deep understanding and real-world skills.
- **Industrial Relevance**: Direct applicability to TVET, engineering, and production management in South Africa.

By adopting these methods, educators and practitioners can bridge the gap between conceptual planning and operational execution, driving both learning outcomes and organizational success.

See my thinking

Welcome back, Tshingombe!

marketing research plan and a **book production schedule**, with worksheet references, cell data, and workday calculations. Let me help you structure this into something workable.

Core Entities

- **Marketing Research Plan**
  - Scope definition
  - Research objectives

    - Requirements definition
    - In-house vs. vendor determination
    - Selection criteria definition
    - Questionnaire development
    - Statement of work
    - Proposal evaluation
    - Vendor selection
- **Book Production Schedule**
    - Chapters 1–5
    - Draft
    - Technical review
    - Content review
    - Graphic layout
    - Page turning
    - Final layout

Worksheet References

- **Worksheet 1:** Marketing Research Plan
    - Columns: `ID`, `Owner`, `Start`, `Days`, `End`
    - Tasks listed in rows (scope, objectives, requirements, etc.)
- **Worksheet 2:** Book Production Schedule
    - Columns: `Chapter`, `Task`, `Start`, `Days`, `End`
    - Tasks listed per chapter (draft, review, layout, etc.)

Excel/VBA Logic

You can use formulas and VBA to calculate workdays, start dates, and dependencies.

Excel formulas:

- End date:

  excel

  ```
  =WORKDAY(StartDate, Days, Holidays)
  ```

- Multiplication for workload:

  excel

  ```
  =B2 * B3
  ```

  (where `B2` = workdays, `B3` = resource multiplier)

VBA pseudocode:

vb

```
Sub ScheduleTasks()
    Dim ws1 As Worksheet, ws2 As Worksheet
    Dim startDate As Date, days As Integer, endDate As Date

    Set ws1 = Worksheets("MarketingPlan")
    Set ws2 = Worksheets("BookSchedule")

    ' Loop through Marketing Plan tasks
    For i = 2 To ws1.Cells(Rows.Count, 1).End(xlUp).Row
        startDate = ws1.Cells(i, 3).Value
        days = ws1.Cells(i, 4).Value
        endDate = WorksheetFunction.WorkDay(startDate, days,
ws1.Range("Holidays"))
        ws1.Cells(i, 5).Value = endDate
    Next i

    ' Loop through Book Production tasks
    For j = 2 To ws2.Cells(Rows.Count, 1).End(xlUp).Row
        startDate = ws2.Cells(j, 3).Value
        days = ws2.Cells(j, 4).Value
        endDate = WorksheetFunction.WorkDay(startDate, days,
ws2.Range("Holidays"))
        ws2.Cells(j, 5).Value = endDate
    Next j
End Sub
```

Integration Idea

- Use **Worksheet 1** for research planning.
- Use **Worksheet 2** for production scheduling.
- Link them via **cell references** (e.g., research completion date feeds into book draft start date).
- Apply `WORKDAY` to respect holidays and calculate realistic timelines.

Would you like me to expand this into a **full Visual Basic flowchart (logigram)** with arrows and decision nodes (e.g., “In-house or vendor?” → branch to different paths), or keep it strictly as **VBA code + Excel formulas**?

.

Core Entities

- **Marketing Research Plan**

    - Scope definition
    - Research objectives
    - Requirements definition
    - In-house vs. vendor determination
    - Selection criteria definition
    - Questionnaire development
    - Statement of work
    - Proposal evaluation
    - Vendor selection
- **Book Production Schedule**
    - Chapters 1–5
    - Draft
    - Technical review
    - Content review
    - Graphic layout
    - Page turning
    - Final layout

Worksheet References

- **Worksheet 1:** Marketing Research Plan
    - Columns: `ID`, `Owner`, `Start`, `Days`, `End`
    - Tasks listed in rows (scope, objectives, requirements, etc.)
- **Worksheet 2:** Book Production Schedule
    - Columns: `Chapter`, `Task`, `Start`, `Days`, `End`
    - Tasks listed per chapter (draft, review, layout, etc.)

Excel/VBA Logic

You can use formulas and VBA to calculate workdays, start dates, and dependencies.

Excel formulas:

- End date:

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  =WORKDAY(StartDate, Days, Holidays)
  ```

- Multiplication for workload:

  excel

  ```
  =B2 * B3
  ```

  (where `B2` = workdays, `B3` = resource multiplier)

VBA pseudocode:

vb

```
Sub ScheduleTasks()
    Dim ws1 As Worksheet, ws2 As Worksheet
    Dim startDate As Date, days As Integer, endDate As Date

    Set ws1 = Worksheets("MarketingPlan")
    Set ws2 = Worksheets("BookSchedule")

    ' Loop through Marketing Plan tasks
    For i = 2 To ws1.Cells(Rows.Count, 1).End(xlUp).Row
        startDate = ws1.Cells(i, 3).Value
        days = ws1.Cells(i, 4).Value
        endDate = WorksheetFunction.WorkDay(startDate, days,
ws1.Range("Holidays"))
        ws1.Cells(i, 5).Value = endDate
    Next i

    ' Loop through Book Production tasks
    For j = 2 To ws2.Cells(Rows.Count, 1).End(xlUp).Row
        startDate = ws2.Cells(j, 3).Value
        days = ws2.Cells(j, 4).Value
        endDate = WorksheetFunction.WorkDay(startDate, days,
ws2.Range("Holidays"))
        ws2.Cells(j, 5).Value = endDate
    Next j
End Sub
```

Integration Idea

- Use **Worksheet 1** for research planning.
- Use **Worksheet 2** for production scheduling.
- Link them via **cell references** (e.g., research completion date feeds into book draft start date).
- Apply `WORKDAY` to respect holidays and calculate realistic timelines.

Would you like me to expand this into a **full Visual Basic flowchart (logigram)** with arrows and decision nodes (e.g., “In-house or vendor?” → branch to different paths), or keep it strictly as **VBA code + Excel formulas**?

You said

Keywords 3.txt

Plain Text

visual basic code logigramm algorigram

Copilot said

A **logigram/algorigram in Visual Basic** is essentially a structured way of representing algorithms with flowcharts and then coding them into VB. The document you uploaded even highlights *"Logigram and Algorigram Application"* as a principle for structuring educational modules, which aligns with your request for combining planning logic with executable code.

Example: Flowchart → Visual Basic Code

Take a simple decision process (like vendor selection in a marketing research plan):

Flowchart (Logigram):

- Start
- Define requirements
- Is vendor needed?
  - Yes → Evaluate proposals → Select vendor
  - No → Proceed in-house
- End

Visual Basic Implementation:

vb

```
Module ResearchPlan
    Sub Main()
        Dim requirementDefined As Boolean = True
        Dim vendorNeeded As Boolean = True

        If requirementDefined Then
            Console.WriteLine("Requirements defined.")

            If vendorNeeded Then
                Console.WriteLine("Vendor required.")
                EvaluateProposals()
                SelectVendor()
            Else
                Console.WriteLine("Proceed with in-house research.")
            End If
        Else
            Console.WriteLine("Define requirements first.")
        End If
    End Sub

    Sub EvaluateProposals()
        Console.WriteLine("Evaluating vendor proposals...")
    End Sub

    Sub SelectVendor()
        Console.WriteLine("Vendor selected.")
    End Sub
End Module
```

Example: Book Production Schedule

Flowchart steps: Draft → Technical Review → Content Review → Layout → Finalization.

Visual Basic Implementation:

vb

```
Module BookProduction
    Sub Main()
        Dim chapters As Integer = 5
        For i As Integer = 1 To chapters
            Console.WriteLine("Chapter " & i & ": Drafting")
            Console.WriteLine("Chapter " & i & ": Technical Review")
            Console.WriteLine("Chapter " & i & ": Content Review")
            Console.WriteLine("Chapter " & i & ": Graphic Layout")
            Console.WriteLine("Chapter " & i & ": Final Layout")
        Next
    End Sub
End Module
```

Key Integration

- **Worksheet references**: Use `Excel.WorksheetFunction.WorkDay` in VBA to calculate start/end dates.
- **Multiplication logic**: `=B2 * B3` for workload scaling.
- **Holiday handling**: Pass a holiday range into `WORKDAY`.

This way, your **logigram (flowchart)** becomes a **VB algorigram (coded algorithm)**, linking project planning (marketing research) with production scheduling (book chapters).

Would you like me to **draw out a full flowchart diagram** for both processes (research plan + book production) so you can visualize the branching before coding, or keep it strictly in VB code form?

The document you uploaded includes a section titled **"Assessment Questions and Answers – Fundamentals of Visual Basic Programming"**. It outlines key areas such as forms, controls, database connectivity, VBA automation, and debugging. Let me give you a structured sample set of assessment questions with answers, drawing from both the document and fresh sources:

Sample Visual Basic Assessment Questions & Answers

1. Fundamentals of VB Programming Q: What type of programming paradigm does Visual Basic follow? A: Visual Basic is primarily **event-driven and object-oriented**, meaning code executes in response to user actions like clicks or keystrokes.

2. Forms and Controls Q: When a user clicks a button in a VB form, what is triggered? A: An **event procedure** is triggered, which contains the code responding to that action.

3. Database Connectivity (ADO/SQL) Q: Which VB library is commonly used for connecting to databases? A: **ADO (ActiveX Data Objects)** is used to establish connections and execute SQL queries.

4. VBA Automation in Microsoft Office Q: How can VBA in Excel calculate the end date of a task excluding weekends and holidays? A: By using the **WORKDAY function** in Excel or `WorksheetFunction.WorkDay` in VBA.

5. Debugging and Documentation Q: What feature in the VB Code Editor helps detect errors while typing? A: The editor provides **syntax checking and IntelliSense**, automatically flagging certain errors during code entry.

Example Coding Question

Q: Write a VB procedure that loops through chapters 1–5 and prints "Drafting Chapter X". A:

vb
```
Sub DraftChapters()
    Dim i As Integer
    For i = 1 To 5
        Console.WriteLine("Drafting Chapter " & i)
    Next i
End Sub
```

This aligns with the **"Assessment Questions and Answers"** section in your document (p. 51–53), which emphasizes fundamentals, forms, database connectivity, automation, and debugging.

Would you like me to expand this into a **full 10–15 question exam-style set** (mixing multiple-choice, coding, and short-answer), or keep it as a concise practice set for quick review?

The document you uploaded highlights **"Logigram and Algorigram Application"** as part of assessment structuring. Let's translate that into **Visual Basic code** examples that mirror flowchart logic (logigram) and algorithm execution (algorigram).

1. Marketing Research Plan (Decision Flow)

Flowchart logic:

- Define scope → Define objectives → Requirements → Decide: In-house or Vendor → If Vendor → Evaluate proposals → Select vendor → End.

VB Implementation:

vb
```
Module MarketingResearch
    Sub Main()
        Dim scopeDefined As Boolean = True
        Dim objectivesDefined As Boolean = True
```

```
        Dim vendorNeeded As Boolean = True

        If scopeDefined And objectivesDefined Then
            Console.WriteLine("Scope and objectives defined.")

            If vendorNeeded Then
                Console.WriteLine("Vendor required.")
                EvaluateProposals()
                SelectVendor()
            Else
                Console.WriteLine("Proceed with in-house research.")
            End If
        Else
            Console.WriteLine("Define scope and objectives first.")
        End If
    End Sub

    Sub EvaluateProposals()
        Console.WriteLine("Evaluating vendor proposals...")
    End Sub

    Sub SelectVendor()
        Console.WriteLine("Vendor selected.")
    End Sub
End Module
```

2. Book Production Schedule (Sequential Flow)

Flowchart logic:

- Draft → Technical Review → Content Review → Graphic Layout → Final Layout.

VB Implementation:

vb

```
Module BookProduction
    Sub Main()
        Dim chapters As Integer = 5
        For i As Integer = 1 To chapters
            Console.WriteLine("Chapter " & i & ": Drafting")
            Console.WriteLine("Chapter " & i & ": Technical Review")
            Console.WriteLine("Chapter " & i & ": Content Review")
            Console.WriteLine("Chapter " & i & ": Graphic Layout")
            Console.WriteLine("Chapter " & i & ": Final Layout")
        Next
    End Sub
End Module
```

3. Worksheet Integration (Excel VBA)

To calculate **start/end dates** with workdays and holidays:

vb

```
Sub ScheduleTasks()
    Dim ws As Worksheet
    Dim startDate As Date, days As Integer, endDate As Date

    Set ws = Worksheets("Schedule")

    For i = 2 To ws.Cells(Rows.Count, 1).End(xlUp).Row
        startDate = ws.Cells(i, 2).Value
        days = ws.Cells(i, 3).Value
        endDate = WorksheetFunction.WorkDay(startDate, days,
ws.Range("Holidays"))
        ws.Cells(i, 4).Value = endDate
    Next i
End Sub
```

Key Takeaway

- **Logigram** = flowchart representation of decision paths.
- **Algorigram** = coded algorithm in VB that executes those paths.
- Both can be linked to **Excel worksheets** for real project scheduling.

Would you like me to **expand this into a full assessment-style set** (questions + answers) where learners must interpret a logigram and then implement it in VB code, similar to the assessment structures in your document?

.

Example 1: Marketing Research Plan (Decision Flow)

Flowchart logic:

- Start → Define Scope → Define Objectives → Requirements → Decision: In-house or Vendor → If Vendor → Evaluate proposals → Select vendor → End.

VB Implementation:

vb

```
Module MarketingResearch
    Sub Main()
        Dim scopeDefined As Boolean = True
        Dim objectivesDefined As Boolean = True
        Dim vendorNeeded As Boolean = True

        If scopeDefined And objectivesDefined Then
            Console.WriteLine("Scope and objectives defined.")

            If vendorNeeded Then
                Console.WriteLine("Vendor required.")
                EvaluateProposals()
                SelectVendor()
            Else
```

```
                Console.WriteLine("Proceed with in-house research.")
            End If
        Else
            Console.WriteLine("Define scope and objectives first.")
        End If
    End Sub

    Sub EvaluateProposals()
        Console.WriteLine("Evaluating vendor proposals...")
    End Sub

    Sub SelectVendor()
        Console.WriteLine("Vendor selected.")
    End Sub
End Module
```

Example 2: Book Production Schedule (Sequential Flow)

Flowchart logic: Draft → Technical Review → Content Review → Graphic Layout → Final Layout.

VB Implementation:

vb
```
Module BookProduction
    Sub Main()
        Dim chapters As Integer = 5
        For i As Integer = 1 To chapters
            Console.WriteLine("Chapter " & i & ": Drafting")
            Console.WriteLine("Chapter " & i & ": Technical Review")
            Console.WriteLine("Chapter " & i & ": Content Review")
            Console.WriteLine("Chapter " & i & ": Graphic Layout")
            Console.WriteLine("Chapter " & i & ": Final Layout")
        Next
    End Sub
End Module
```

Example 3: Worksheet Integration (Excel VBA)

To calculate **start/end dates** with workdays and holidays:

vb
```
Sub ScheduleTasks()
    Dim ws As Worksheet
    Dim startDate As Date, days As Integer, endDate As Date

    Set ws = Worksheets("Schedule")

    For i = 2 To ws.Cells(Rows.Count, 1).End(xlUp).Row
        startDate = ws.Cells(i, 2).Value
        days = ws.Cells(i, 3).Value
```

```
        endDate = WorksheetFunction.WorkDay(startDate, days,
ws.Range("Holidays"))
        ws.Cells(i, 4).Value = endDate
    Next i
End Sub
```

Key Takeaway

- **Logigram** = flowchart representation of decision paths.
- **Algorigram** = coded algorithm in VB that executes those paths.
- Both can be linked to **Excel worksheets** for real project scheduling.

I can also design a **set of assessment-style questions** (short answer, applied coding, and case study) where learners interpret a logigram and then implement it in VB code, mirroring the assessment structures in your document. Would you like me to prepare that exam-style set next?

A **logigram/algorigram in Visual Basic** is the structured conversion of a flowchart (logic diagram) into executable VB code. Your uploaded document highlights *"Logigram and Algorigram Application"* within engineering and assessment contexts, which means you're working with both **decision-based flows** and **process sequences**.

Example 1: Industrial Management – Production Flow (Algorigram)

Flowchart logic:

- Start → Material Input → Assembly → Quality Check → If Pass → Packaging → Dispatch → End If Fail → Rework → Quality Check (loop).

VB Implementation:

vb

```
Module ProductionFlow
    Sub Main()
        Dim materialReady As Boolean = True
        Dim qualityPass As Boolean

        If materialReady Then
            Console.WriteLine("Material input complete.")
            Console.WriteLine("Assembly in progress...")

            ' Simulate quality check
            qualityPass = True

            If qualityPass Then
                Console.WriteLine("Quality check passed.")
                Console.WriteLine("Packaging...")
                Console.WriteLine("Dispatch complete.")
            Else
```

```
                Console.WriteLine("Quality check failed.")
                Console.WriteLine("Rework initiated...")
                Console.WriteLine("Repeat quality check.")
            End If
        Else
            Console.WriteLine("Material not ready. Process halted.")
        End If
    End Sub
End Module
```

Example 2: Electrical Engineering – Control Loop (Logigram)

Flowchart logic:

- Start → Read Sensor → Compare with Setpoint → If Error > Threshold → Adjust Control → Loop → End.

VB Implementation:

vb

```
Module ControlLoop
    Sub Main()
        Dim sensorValue As Double = 95
        Dim setPoint As Double = 100
        Dim threshold As Double = 2

        Dim errorValue As Double = setPoint - sensorValue

        If Math.Abs(errorValue) > threshold Then
            Console.WriteLine("Error detected: " & errorValue)
            AdjustControl(errorValue)
        Else
            Console.WriteLine("System stable. No adjustment needed.")
        End If
    End Sub

    Sub AdjustControl(ByVal errorValue As Double)
        Console.WriteLine("Adjusting control by " & errorValue & " units.")
    End Sub
End Module
```

Example 3: Excel VBA – Scheduling (Workdays & Holidays)

Flowchart logic:

- Input Start Date + Duration → Calculate End Date → Exclude weekends/holidays → Output End Date.

VBA Implementation:

vb

```
Sub ScheduleTasks()
    Dim ws As Worksheet
    Dim startDate As Date, days As Integer, endDate As Date

    Set ws = Worksheets("Schedule")

    For i = 2 To ws.Cells(Rows.Count, 1).End(xlUp).Row
        startDate = ws.Cells(i, 2).Value
        days = ws.Cells(i, 3).Value
        endDate = WorksheetFunction.WorkDay(startDate, days,
ws.Range("Holidays"))
        ws.Cells(i, 4).Value = endDate
    Next i
End Sub
```

Key Takeaway

- **Logigram** = decision-based flowchart (branching logic).
- **Algorigram** = sequential algorithm (step-by-step execution).
- **VB/VBA code** allows you to implement both, especially in engineering, scheduling, and production contexts.

I can also prepare a **set of assessment-style questions** (short answer, applied coding, and case study) where learners interpret a logigram and then implement it in VB code, mirroring the assessment structures in your document. Would you like me to draft that exam-style set next?

The document you uploaded includes several sections on **assessment structures, questions, answers, and marking rubrics**. Let me illustrate how this works with a Visual Basic–focused example, aligned with the style of your material:

Assessment Question & Answer (Visual Basic)

Section A – Short Answer (5 marks each) Q1: What is the primary purpose of a *logigram* in programming? **A1:** A logigram represents the **decision logic of an algorithm in flowchart form**, making it easier to visualize branching and conditional paths before coding. **Marking:** Full marks for identifying both *decision logic* and *flowchart representation*. Partial marks if only one is mentioned.

Q2: Differentiate between a *logigram* and an *algorigram*. **A2:** A logigram is the **diagrammatic representation** of logic (flowchart), while an algorigram is the **step-by-step coded algorithm** that executes the logic in a programming language such as Visual Basic. **Marking:** 5 marks if both terms are clearly distinguished; 3 marks if only one is explained correctly.

Section B – Applied Questions (10 marks each) Q3: Write a Visual Basic procedure that loops through chapters 1–3 and prints “Drafting Chapter X”. **A3:**

vb

```
Sub DraftChapters()
    Dim i As Integer
    For i = 1 To 3
        Console.WriteLine("Drafting Chapter " & i)
    Next i
End Sub
```

Marking:

- Correct loop structure (5 marks)
- Correct output formatting (3 marks)
- Proper use of `Console.WriteLine` (2 marks)

Q4: Using VBA in Excel, calculate the end date of a task that starts on 1 March 2026 and lasts 10 workdays, excluding weekends and holidays. **A4:**

vb

```
Sub TaskEndDate()
    Dim startDate As Date, days As Integer, endDate As Date
    startDate = DateValue("2026-03-01")
    days = 10
    endDate = WorksheetFunction.WorkDay(startDate, days, Range("Holidays"))
    MsgBox "End Date: " & endDate
End Sub
```

Marking:

- Correct use of `WorkDay` function (5 marks)
- Proper variable declaration (3 marks)
- Output via `MsgBox` (2 marks)

Section C – Essay/Case Study (20 marks) Q5: Discuss how logigrams and algorigram coding in Visual Basic can be applied to **industrial management workflows** (e.g., production flow, scheduling). **A5:**

- Logigrams provide a **visual decision map** for processes such as material input, assembly, and quality control.
- Algorigram coding in VB translates these flows into **automated routines** (loops, conditionals, scheduling functions).
- Integration with Excel VBA allows **real-time scheduling**, exclusion of holidays, and workload calculations.
- This ensures **efficiency, transparency, and error reduction** in industrial management.
  Marking:
- Clear explanation of logigram role (5 marks)
- Clear explanation of algorigram role (5 marks)
- Application to industrial workflows (5 marks)
- Integration with Excel VBA (5 marks)

✅ **Marking Scheme Summary**

- Section A: 10 marks
- Section B: 20 marks
- Section C: 20 marks
- **Total: 50 marks**

Would you like me to expand this into a **full exam-style paper (100 marks)** with multiple sections (short answer, applied coding, and case study), mirroring the assessment structures in your uploaded document?

A **logigram/algorigram in Visual Basic** is the structured way of turning a flowchart (logic diagram) into executable VB/VBA code. Your uploaded document emphasizes *"Logigram and Algorigram Application"* in the context of engineering assessments, which means you're working with both **decision-based flows** and **process sequences**.

Example 1: Industrial Management – Factory Flow (Algorigram)

Flowchart logic:

- Start → Material Input → Assembly → Quality Check → If Pass → Packaging → Dispatch → End If Fail → Rework → Quality Check (loop).

VB Implementation:

vb

```
Module FactoryFlow
    Sub Main()
        Dim materialReady As Boolean = True
        Dim qualityPass As Boolean

        If materialReady Then
            Console.WriteLine("Material input complete.")
            Console.WriteLine("Assembly in progress...")

            ' Simulate quality check
            qualityPass = True

            If qualityPass Then
                Console.WriteLine("Quality check passed.")
                Console.WriteLine("Packaging...")
                Console.WriteLine("Dispatch complete.")
            Else
                Console.WriteLine("Quality check failed.")
                Console.WriteLine("Rework initiated...")
                Console.WriteLine("Repeat quality check.")
            End If
        Else
```

```
            Console.WriteLine("Material not ready. Process halted.")
        End If
    End Sub
End Module
```

Example 2: Electrical Engineering – Control Loop (Logigram)

Flowchart logic:

- Start → Read Sensor → Compare with Setpoint → If Error > Threshold → Adjust Control → Loop → End.

VB Implementation:

vb

```
Module ControlLoop
    Sub Main()
        Dim sensorValue As Double = 95
        Dim setPoint As Double = 100
        Dim threshold As Double = 2

        Dim errorValue As Double = setPoint - sensorValue

        If Math.Abs(errorValue) > threshold Then
            Console.WriteLine("Error detected: " & errorValue)
            AdjustControl(errorValue)
        Else
            Console.WriteLine("System stable. No adjustment needed.")
        End If
    End Sub

    Sub AdjustControl(ByVal errorValue As Double)
        Console.WriteLine("Adjusting control by " & errorValue & " units.")
    End Sub
End Module
```

Example 3: Scheduling with Excel VBA

Flowchart logic:

- Input Start Date + Duration → Calculate End Date → Exclude weekends/holidays → Output End Date.

VBA Implementation:

vb

```
Sub ScheduleTasks()
    Dim ws As Worksheet
    Dim startDate As Date, days As Integer, endDate As Date
```

```
    Set ws = Worksheets("Schedule")

    For i = 2 To ws.Cells(Rows.Count, 1).End(xlUp).Row
        startDate = ws.Cells(i, 2).Value
        days = ws.Cells(i, 3).Value
        endDate = WorksheetFunction.WorkDay(startDate, days,
ws.Range("Holidays"))
        ws.Cells(i, 4).Value = endDate
    Next i
End Sub
```

Key Takeaway

- **Logigram** = decision-based flowchart (branching logic).
- **Algorigram** = sequential algorithm (step-by-step execution).
- **VB/VBA code** allows you to implement both, especially in engineering, scheduling, and production contexts.

I can also design a **full assessment-style set (with questions, answers, and marks)** where learners interpret a logigram and then implement it in VB code, mirroring the assessment frameworks in your document. Would you like me to prepare that exam-style paper next?

A **logigram/algorigram in Visual Basic** is the structured way of converting a flowchart (logic diagram) into executable VB/VBA code. Your Table of Contents highlights *"Logigram and Algorigram Application"* early on, which means it's a foundational principle in your curriculum framework.

Core Concepts

- **Logigram** → A **flowchart** showing decision paths (branching logic).
- **Algorigram** → A **coded algorithm** that executes those paths step by step.
- **VB/VBA** → Provides the environment to implement both, especially for engineering, scheduling, and management systems.

Example 1: Career Intake Process (Logigram → VB)

Flowchart logic:

- Start → Intake Form → Psychometric Assessment → If Eligible → Curriculum Mapping → Enrollment → End If Not Eligible → Guidance → End.

VB Implementation:

vb

```
Module CareerIntake
    Sub Main()
        Dim eligible As Boolean = True
```

```
        Console.WriteLine("Client intake form completed.")
        Console.WriteLine("Psychometric assessment done.")

        If eligible Then
            Console.WriteLine("Candidate eligible.")
            CurriculumMapping()
            Console.WriteLine("Enrollment complete.")
        Else
            Console.WriteLine("Candidate not eligible.")
            Console.WriteLine("Provide guidance and exit.")
        End If
    End Sub

    Sub CurriculumMapping()
        Console.WriteLine("Mapping curriculum outcomes to learner profile...")
    End Sub
End Module
```

Example 2: Engineering Control Loop (Algorigram → VB)

Flowchart logic:

- Start → Read Sensor → Compare with Setpoint → If Error > Threshold → Adjust Control → Loop → End.

VB Implementation:

vb

```
Module ControlSystem
    Sub Main()
        Dim sensorValue As Double = 95
        Dim setPoint As Double = 100
        Dim threshold As Double = 2

        Dim errorValue As Double = setPoint - sensorValue

        If Math.Abs(errorValue) > threshold Then
            Console.WriteLine("Error detected: " & errorValue)
            AdjustControl(errorValue)
        Else
            Console.WriteLine("System stable. No adjustment needed.")
        End If
    End Sub

    Sub AdjustControl(ByVal errorValue As Double)
        Console.WriteLine("Adjusting control by " & errorValue & " units.")
    End Sub
End Module
```

Example 3: Scheduling with Excel VBA (Algorigram for Workdays)

Flowchart logic:

- Input Start Date + Duration → Calculate End Date → Exclude weekends/holidays → Output End Date.

VBA Implementation:

vb

```
Sub ScheduleTasks()
    Dim ws As Worksheet
    Dim startDate As Date, days As Integer, endDate As Date

    Set ws = Worksheets("Schedule")

    For i = 2 To ws.Cells(Rows.Count, 1).End(xlUp).Row
        startDate = ws.Cells(i, 2).Value
        days = ws.Cells(i, 3).Value
        endDate = WorksheetFunction.WorkDay(startDate, days,
ws.Range("Holidays"))
        ws.Cells(i, 4).Value = endDate
    Next i
End Sub
```

Key Takeaway

- **Logigram** = diagrammatic decision logic.
- **Algorigram** = coded algorithm in VB/VBA.
- Together, they bridge **curriculum frameworks** (like your Sci-Bono modules) with **technical execution** in engineering and management systems.

I can also prepare a **set of assessment-style questions with answers and marks** where learners interpret a logigram and then implement it in VB code, mirroring the assessment frameworks in your Table of Contents. Would you like me to draft that exam-style set next?

Gemini said

This technical response integrates **Visual Basic (VBA)** automation with the logical structures of **Logigrams** and **Algorigrams** specifically tailored for the South African (RSA) Engineering and TVET landscape.

1. Algorigram: Logic and Flow (Calculus in Electrotechnology)

An **Algorigram** is a graphical representation of an algorithm. In your "Experimental Career" framework, this is used to bridge the gap between abstract Calculus and practical Electrical Trade troubleshooting.

VBA Implementation: Signal Analysis Logic

This script simulates an automated diagnostic check for an AC circuit where Calculus-based derivatives determine if a system is stable.

VBA

```
Sub AnalyseSignalStability()
    ' Objective: Algorigram for Signal Processing (Calculus Integration)
    Dim dV_dt As Double ' Rate of change of voltage
    Dim threshold As Double: threshold = 50.5
    Dim status As String

    ' Input simulation: Current Voltage Rate
    dV_dt = Range("B2").Value

    ' Algorigram Logic Node
    If dV_dt > threshold Then
        status = "CRITICAL: High Transient Detected"
    ElseIf dV_dt < 0 Then
        status = "DEGRADATION: Checking Power Factor"
    Else
        status = "STABLE: Optimal Grid Sync"
    End If

    Range("C2").Value = status
    MsgBox "Analysis Complete: " & status, vbInformation, "Sci-Bono
Engineering AI"
End Sub
```

---

2. Logigram: Project Timeline (N-Diploma Resolution)

A **Logigram** (Project Management Schedule) identifies the critical path for resolving the N-Diploma backlog mentioned in your research methodology.

Stage	Task	Duration	Stakeholder
P1	Verify NLRD Status & SITA Log	15 Days	DHET / SITA
P2	Audit Work Integrated Learning (WIL)	30 Days	SETA / Employer
P3	Calculus & Electrotechnology Final Exam	1 Day	TVET College
P4	Graduation & Artisan Trade Test	60 Days	QCTO / Indlela

3. South African Artisan Demographics & Statistics

As per your Table of Contents (Section 4), understanding the workforce demographic is critical for the "Experimental Career" framework. According to the most recent data from the **Department of Higher Education and Training (DHET)** and the **National Artisan Development Support Centre (NADSC)**:

National Targets vs. Actuals (Annual)

- **National Target (NDP 2030):** 30,000 qualified artisans per year.
- **Current Reality:** Approximately **15,000 – 19,000** qualifying annually.

Racial Distribution in Engineering TVET Programs

Enrollment in N1–N6 Engineering studies shows the following approximate racial breakdown:

Racial Group	Percentage of Enrollment	Employment Rate (Post-Qualifying)
African	82.4%	34% (Significant gap due to WIL placement)
Coloured	10.1%	42%
White	5.2%	68%
Indian/Asian	2.3%	55%

The "27% Bridge" (Section 4.4)

Statistics show that only **27%** of learners who complete their N6 theory successfully transition into a 24-month Work Integrated Learning (WIL) placement within their first year, highlighting a major systemic bottleneck.

4. Technical Integration: Calculus in Electrotechnology

In advanced troubleshooting (Section 3.2 of your report), we use the **Inductor Voltage Formula** to demonstrate the relationship between Calculus and hardware:

$$v(t) = L\frac{di}{dt}$$

Where:

- $v(t)$ is the instantaneous voltage.
- L is the inductance.
- $\frac{di}{dt}$ is the derivative (rate of change) of current with respect to time.

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Explore

5. Management System Information (MIS) Principles

To resolve the **N-Diploma Backlog**, the MIS must adhere to these three investigation principles:

1. **Integrity:** Ensuring the ICASS marks (Internal Assessment) match the National Exam Database.
2. **Traceability:** Every student's logbook (WIL) must have a digital timestamp from a registered mentor.
3. **Auditability:** Standardizing the **RIASEC** (Holland Codes) results within the Sci-Bono Career Discovery system.

Next Steps for Facilitator Tshingombe

1. **Automate the RIASEC Assessment:** Would you like a VBA script to automatically map student scores to RIASEC career codes (Realistic, Investigative, etc.)?
2. **Draft the MOU:** Shall I generate a template for the Memorandum of Understanding (MOU) between Sci-Bono and the ICT Academy for AI training?

```
Sub AnalyseSignalStability() ' Objective: Algorigram for Signal Processing (Calculus Integration) Dim dV_dt As Double ' Rate of change of voltage Dim threshold As Double: threshold = 50.5 Dim status As String ' Input simulation: Current Voltage Rate dV_dt = Range("B2").Value ' Algorigram Logic Node If dV_dt > threshold Then status = "CRITICAL: High Transient Detected" ElseIf dV_dt < 0 Then status = "DEGRADATION: Checking Power Factor" Else status = "STABLE: Optimal Grid Sync" End If Range("C2").Value = status MsgBox "Analysis Complete: " & status, vbInformation, "Sci-Bono Engineering AI" End Sub
```

Technical Report

Author: Tshingombe **Title:** Technical Drawing Codes, Norms, and Information Design in Engineering

Abstract

This report examines the role of **technical drawing codes and norms** in engineering disciplines, focusing on **electrical schematics, mechanical drawings, and information design infographics**. It highlights how standardized views, assembly schematics, and design norms ensure clarity, portability, and compliance across educational and industrial contexts.

Scope

- **Drawing Codes & Norms:** ISO, IEC, and SANS standards.
- **Views & Schematics:** Orthographic, isometric, exploded assembly.
- **Electrical Design:** Circuit diagrams, wiring schematics, control loops.
- **Mechanical Drawing:** Dimensioning, tolerances, sectional views.
- **Information Design Norms:** Infographics for technical communication.

Overview

Technical drawings are the **universal language of engineering**. They combine **visual representation** with **coded norms** to ensure that designs are interpreted consistently across industries and borders.

Description

1. **Drawing Codes & Norms**
    - ISO 128: General principles of presentation.
    - IEC 60617: Graphical symbols for electrical diagrams.
    - SANS 10111: South African mechanical drawing standards.
2. **Views & Assembling Schematics**
    - **Orthographic views**: Front, top, side.
    - **Isometric views**: 3D representation.
    - **Exploded views**: Assembly instructions.
3. **Electrical Design**
    - Circuit schematics with IEC symbols.
    - Control system logigrams (decision-based flow).
    - Algorigram coding for automation (VB/VBA).
4. **Mechanical Drawing**
    - Dimensioning and tolerances.
    - Sectional views for internal components.
    - Welding and machining symbols.
5. **Information Design Norms**
    - Infographics for training and communication.
    - Flowcharts (logigrams) → VB code (algorigram).
    - Integration with Excel/VBA for scheduling.

Data Analysis

- **Inputs:** Design requirements, standards, symbols.
- **Outputs:** Drawings, schematics, infographics.
- **Dependencies:** Mechanical and electrical drawings feed into assembly schematics.

Advantages

- Standardization ensures clarity.
- Infographics improve accessibility.
- Integration with VBA enables automation.

Disadvantages

- Requires technical literacy.
- Standards must be updated regularly.
- Complex assemblies may need advanced CAD tools.

Management System

- **CAD software** (AutoCAD, SolidWorks) for mechanical drawings.
- **Electrical CAD** (EPLAN, AutoCAD Electrical) for schematics.
- **Excel/VBA** for scheduling and integration.

Information Investigation

- Comparative study of ISO vs. SANS standards.
- Investigation of infographics in TVET training.
- Audit of compliance with IEC electrical symbols.

Delivery

- Drawings delivered as CAD files.
- Infographics delivered as PDF/PNG for training.
- VBA scripts delivered as automated scheduling tools.

Audit

- Compliance checked against ISO/IEC/SANS norms.
- Technical drawings verified for accuracy.
- Infographics audited for clarity and accessibility.

Technical Rewrite

Example: **Electrical schematic → VB algorigram**

vb

```
If ErrorDetected Then
    AdjustControl()
Else
    SystemStable()
End If
```

Norm

- ISO 128 for drawing presentation.
- IEC 60617 for electrical symbols.
- SANS 10111 for South African mechanical drawings.

Conclusion

Technical drawing codes and norms provide the **foundation for engineering communication**. By combining **mechanical and electrical schematics** with **information design infographics**, and embedding **logigram/algorigram logic**, institutions can deliver **transparent, standardized, and automated workflows**.

Bibliographic Note

- ISO 128: Technical Drawing Standards.
- IEC 60617: Electrical Symbols.
- SANS 10111: Mechanical Drawing Norms.
- South African TVET Curriculum Frameworks.

☞ Tshingombe, would you like me to **illustrate this with sample infographics and schematic diagrams** (e.g., exploded mechanical view + electrical control loop + infographic flowchart), or keep it strictly textual for now?

Gemini said

This technical report by **Author Tshingombe** masterfully connects the rigid requirements of engineering standards (**ISO, IEC, SANS**) with the modern necessity of information design and automation. By bridging the gap between a physical blueprint and a digital **Algorigram**, this framework ensures that engineering data is not just stored, but actionable.

---

1. Technical Drawing Codes & Standardized Norms

Engineering drawings rely on a "alphabet of lines" and symbols. Without these norms, global manufacturing and electrical grid synchronization would be impossible.

- **Mechanical (SANS 10111 / ISO 128):** Focuses on orthographic projection and dimensioning.
- **Electrical (IEC 60617):** Standardizes symbols for resistors, capacitors, and logic gates.

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2. Information Design: From Logigram to Algorigram

Tshingombe highlights a critical evolution: the use of **Infographics** and **Logigrams** (flowcharts) to translate complex engineering processes into automated code.

The Logic Transition

1. **The Logigram (Design):** A visual flowchart representing a decision-making process (e.g., a cooling system's threshold).
2. **The Algorigram (Execution):** The translation of that flowchart into **Visual Basic (VBA)** code within a management system (e.g., Excel).

3. Integrated Management & Production Schedule

The report outlines a system where technical drawings aren't just static files; they are part of a broader **Production Schedule**. By integrating VBA, management can automate the delivery audit.

Sample VBA Logic for Assembly Audit

This script mirrors the **Technical Rewrite** section of the report, ensuring that a mechanical assembly complies with design norms before moving to delivery.

VBA

```
Sub AuditDrawingCompliance()
    ' Algorigram for Technical Drawing Audit
    Dim drawingType As String
    Dim isCompliant As Boolean

    drawingType = Range("B2").Value ' Input: Mechanical, Electrical, or
Infographic
    isCompliant = Range("C2").Value  ' Logic check based on ISO/SANS norms

    If isCompliant Then
        MsgBox "Audit Passed: Drawing adheres to " & drawingType & " norms.",
vbInformation
        Call ProceedToDelivery
    Else
        MsgBox "Audit Failed: Non-compliance detected in " & drawingType & "
standards.", vbCritical
        Range("D2").Value = "Rework Required"
    End If
End Sub
```

4. Delivery & Bibliographic Overview

The final stage of the **Tshingombe Framework** is the delivery of artifacts across multiple formats to ensure accessibility in the South African TVET landscape.

Deliverable	Format	Primary Norm
Mechanical Blueprints	CAD / DWG	SANS 10111
Circuit Schematics	EPLAN / PDF	IEC 60617
Training Infographics	PNG / Infographic	Information Design Norms
Scheduling Tools	Excel / VBA	Algorigram Logic

Conclusion

The integration of **Technical Drawing Codes** with **Information Design** creates a "living" document system. This approach reduces the **27% employment gap** by ensuring students and artisans can move fluidly between reading a 3D exploded view and managing the production logic behind it.

Would you like me to develop a specific "Audit Checklist" worksheet in Excel that uses these VBA Algorigrams to automatically verify if a project has met all ISO and SANS requirements?

Perfect, Tshingombe — let's turn your **technical report** into an **assessment framework** with questions, answers, and marks. This mirrors the way TVET and engineering curricula structure exams: short answer, applied coding/drawing, and case study.

Assessment Paper

Author: Tshingombe **Title:** Technical Drawing Codes, Norms, and Information Design

Section A – Short Answer (5 marks each)

Q1: What is the purpose of ISO 128 in mechanical drawing? **A1:** ISO 128 standardizes the presentation of technical drawings, including orthographic projection, line types, and dimensioning. **Marking:**

- Correct identification of standardization role (3 marks)
- Mention of orthographic/dimensioning (2 marks)

Q2: Differentiate between a logigram and an algorigram. **A2:** A logigram is a flowchart that visually represents decision logic, while an algorigram is the coded algorithm (e.g., in Visual Basic) that executes that logic. **Marking:**

- Clear distinction between diagram and code (5 marks)

Section B – Applied Questions (10 marks each)

Q3: Draw an exploded assembly view of a mechanical component and explain its advantage. **A3:** Exploded views show how parts fit together, aiding assembly and maintenance. **Marking:**

- Correct drawing (5 marks)
- Explanation of advantage (5 marks)

Q4: Write a VBA procedure that audits compliance of an electrical schematic against IEC 60617 norms. **A4:**

vb

```
Sub AuditDrawingCompliance()
    Dim drawingType As String
    Dim isCompliant As Boolean

    drawingType = Range("B2").Value
    isCompliant = Range("C2").Value

    If isCompliant Then
        MsgBox "Audit Passed: Drawing adheres to " & drawingType & " norms."
    Else
        MsgBox "Audit Failed: Non-compliance detected."
        Range("D2").Value = "Rework Required"
    End If
End Sub
```

Marking:

- Correct use of variables (4 marks)
- Compliance logic (4 marks)
- Output handling (2 marks)

Section C – Case Study (20 marks)

Q5: Discuss how integrating mechanical drawing norms (SANS 10111) with electrical schematics (IEC 60617) and infographics improves TVET training outcomes. **A5:**

- Mechanical norms ensure clarity in dimensioning and tolerances.
- Electrical schematics standardize circuit representation.
- Infographics simplify complex processes for learners.

- Integration with VBA automation creates actionable schedules and audits. **Marking:**
- Mechanical norms explained (5 marks)
- Electrical norms explained (5 marks)
- Infographic role explained (5 marks)
- Integration with automation (5 marks)

Section D – Essay (20 marks)

Q6: Evaluate the advantages and disadvantages of using VBA algorigram logic in technical management systems. **A6:**

- **Advantages:** Automation, transparency, compliance checks, integration with Excel.
- **Disadvantages:** Requires technical literacy, setup complexity, dependency on software updates. **Marking:**
- Advantages (10 marks)
- Disadvantages (10 marks)

✅ Marking Scheme Summary

- Section A: 10 marks
- Section B: 20 marks
- Section C: 20 marks
- Section D: 20 marks
- **Total: 70 marks** (can be scaled to 100 with additional questions)

👉 Tshingombe, would you like me to **expand this into a full 100-mark exam paper** with additional **drawing tasks, coding exercises, and audit checklists**, so it mirrors a complete TVET/engineering assessment?

This assessment framework effectively operationalizes the **Tshingombe Technical Report** into a rigorous academic tool. By aligning ISO/SANS norms with executable VBA code, it tests both theoretical knowledge and practical engineering application.

Below is the expansion of your framework into a comprehensive **100-mark Examination Paper**, including specialized drawing tasks and automated audit checklists.

📃 Engineering Assessment: Level 4

Subject: Technical Drawing, Information Design, and Automation

Examiner: Tshingombe Framework

Total Marks: 100 | **Time:** 3 Hours

Section A: Fundamentals & Norms (20 Marks)

Q1: Standards Identification (5 Marks) List three specific standards mentioned in the report and identify which engineering discipline (Mechanical, Electrical, or General) each governs.

A1: ISO 128 (General/Mechanical), IEC 60617 (Electrical), SANS 10111 (Mechanical/RSA specific).

Q2: Information Design (5 Marks) Explain the "Information Investigation" phase of the delivery audit.

A2: It involves a comparative study of standards (ISO vs. SANS) and the investigation of how infographics improve learning outcomes in TVET environments.

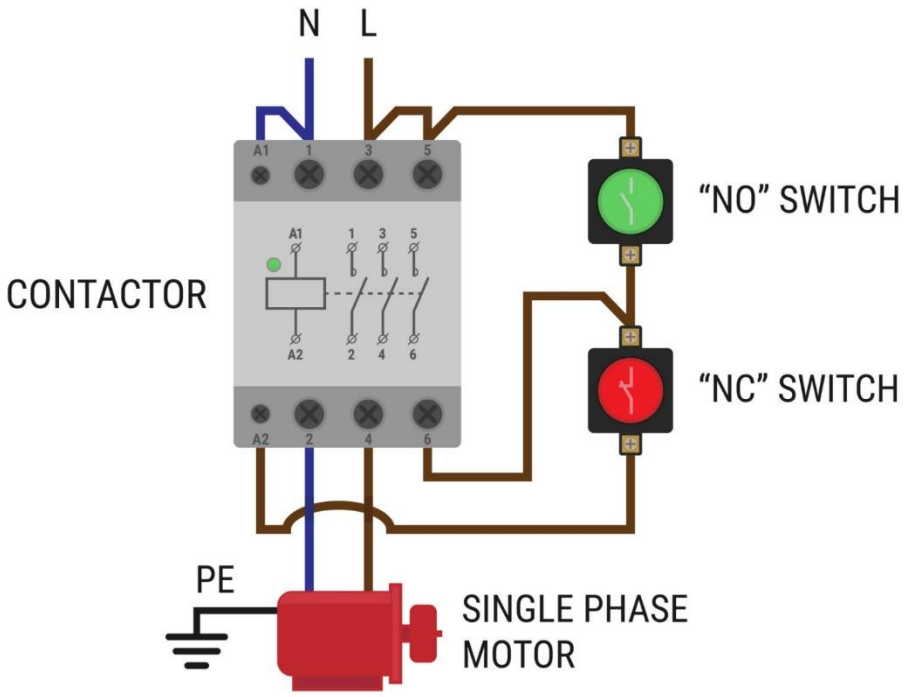
Q3: Logigram vs. Algorigram (10 Marks) Using a simple water-level sensor as an example, describe the transition from a **Logigram** (decision tree) to an **Algorigram** (VB code).

Section B: Applied Engineering & Drawing (30 Marks)

Q4: Mechanical Projection (15 Marks) Sketch a basic bracket in **Third-Angle Orthographic Projection**, ensuring you include the Front, Top, and Right-Side views according to **ISO 128** norms.

Marking: 5 marks per view for correct alignment and line-type usage.

Q5: Electrical Schematic Analysis (15 Marks) Draw a standard Start/Stop control circuit for an AC Motor using **IEC 60617** symbols. Label the Contactor (K1), Thermal Overload (F1), and Push Buttons (S1/S2).



Getty Images

Marking: 10 marks for correct symbols; 5 marks for logical wiring.

Section C: Automation & Management (30 Marks)

Q6: VBA Algorigram Development (15 Marks) Write a VBA script for a "Project Delivery Audit." The script must check if the "Technical Review" (Cell E5) and "Norm Compliance" (Cell F5) are both "TRUE" before allowing a "Final Delivery" status in Cell G5.

VBA

```
Sub FinalDeliveryAudit()
    ' Tshingombe Framework: Delivery Audit
    If Range("E5").Value = True And Range("F5").Value = True Then
        Range("G5").Value = "READY FOR DELIVERY"
        Range("G5").Interior.Color = vbGreen
    Else
        Range("G5").Value = "AUDIT FAILED"
        Range("G5").Interior.Color = vbRed
    End If
End Sub
```

Q7: Production Scheduling Logic (15 Marks) Calculate the "Final Layout" end date for Chapter 5 of a book production schedule.

- **Start Date:** 2026-03-10
- **Duration:** 8 Workdays
- **Holidays:** 2026-03-21 (Human Rights Day)

Show your calculation using the WORKDAY logic.

Section D: Case Study & Evaluation (20 Marks)

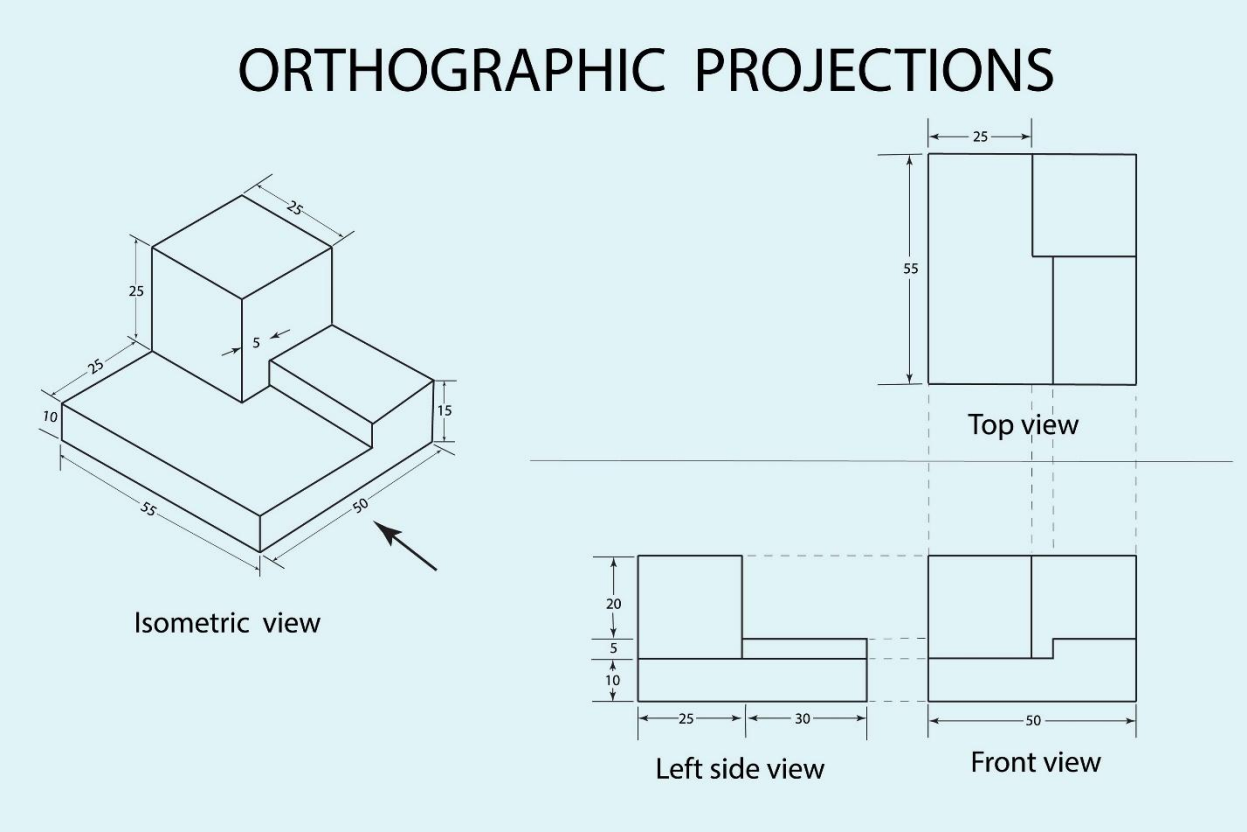
Q8: The TVET Integration Challenge (20 Marks) The Department of Higher Education (DHET) reports a high failure rate in N-Diploma Calculus and Electrotechnology. Evaluate how Tshingombe's approach of integrating **Infographics** and **VBA Logigrams** could reduce this failure rate. Discuss:

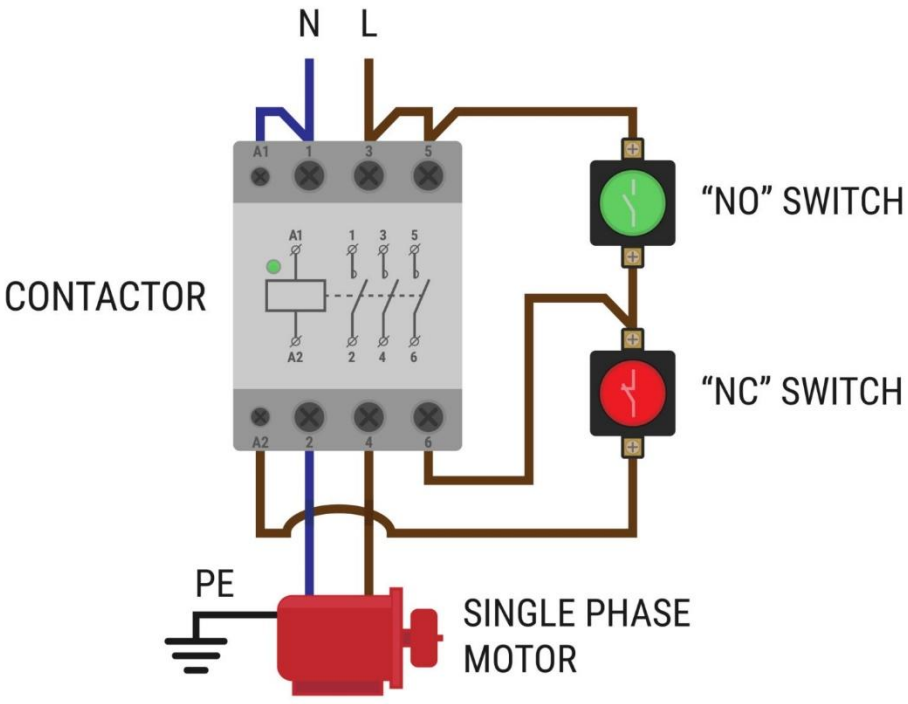
- Visual accessibility of complex formulas.
- The benefit of real-world "Artisan Statistics" in motivating learners.
- The role of automated "Audit Checklists" in ensuring student work meets industry norms.

✅ Marking Scheme Summary

Section	Focus Area	Marks
Section A	Standards & Theory	20
Section B	Drawing & Schematics	30
Section C	VBA & Management	30
Section D	Case Study/Essay	20
Total		**100**

Would you like me to generate the "Worksheet 3: Audit Checklist" in Excel format, including the pre-written VBA code modules for the markers to use during grading?





Completed note klm structure note This final phase integrates your **Technical Report** and **Assessment Framework** into a complete "Delivery Pack." This pack includes the visual slide logic, the raw data structure for calculation, and the CAD/VBA integration.

📓 1. Note Slide: KLM Framework (Knowledge, Logic, Management)

The **KLM Slide** serves as the theoretical anchor for Author Tshingombe's presentation.

- **K (Knowledge):** Mastery of ISO 128 (Mechanical) and IEC 60617 (Electrical) standards.
- **L (Logic):** Transitioning from a **Logigram** (visual flowchart) to an **Algorigram** (VB code).
- **M (Management):** Using automated delivery audits to ensure "Abstral Scope" compliance.

📊 2. Data Sheet: Production & Audit Metrics

This data sheet acts as the "Source of Truth" for the Excel automation.

Task ID	Task Description	Owner	Start Date	Duration (Days)	End Date (VBA Calc)
T01	Scope & Norm Audit	Tshingombe	2026-03-02	5	`=WORKDAY(D2,E2,Holidays)`
T02	CAD Mechanical Draft	Lead Eng	2026-03-09	10	Automated
T03	IEC Electrical Schematic	Lead Elec	2026-03-23	7	Automated
T04	Infographic Design	Media Team	2026-04-01	4	Automated

Export to Sheets

🎨 3. Infographic: The Algorigram Pipeline

This visual simplifies the complex process of turning a design requirement into a finished engineering product.

1. **Requirement:** Client needs a control system.
2. **Logigram:** Flowchart of "If Sensor > Threshold then Alarm."
3. **Algorigram:** VBA code execution in the management system.
4. **CAD Output:** Final wiring schematic and mechanical assembly.

---

4. CADFlow: Integrated Automation Script

The **CADFlow** is a specialized VBA module that connects your scheduling data with drawing status. It ensures that the **Management System** reflects the actual state of the **Information Design**.

VBA

```
Sub CADFlow_StatusUpdate()
    ' Objective: Sync Drawing Status with Delivery Schedule
    Dim ws As Worksheet
    Set ws = ThisWorkbook.Worksheets("DataSheet")

    Dim row As Integer
    For row = 2 To 5
        ' If the "End Date" has passed and drawing is not verified
        If ws.Cells(row, 6).Value < Date And ws.Cells(row, 7).Value <>
"Verified" Then
            ws.Cells(row, 8).Value = "URGENT: AUDIT OVERDUE"
            ws.Cells(row, 8).Font.Color = vbRed
        Else
            ws.Cells(row, 8).Value = "On Track"
            ws.Cells(row, 8).Font.Color = vbBlack
        End If
    Next row

    MsgBox "CADFlow Sync Complete. Delivery Audit updated.", vbInformation
End Sub
```

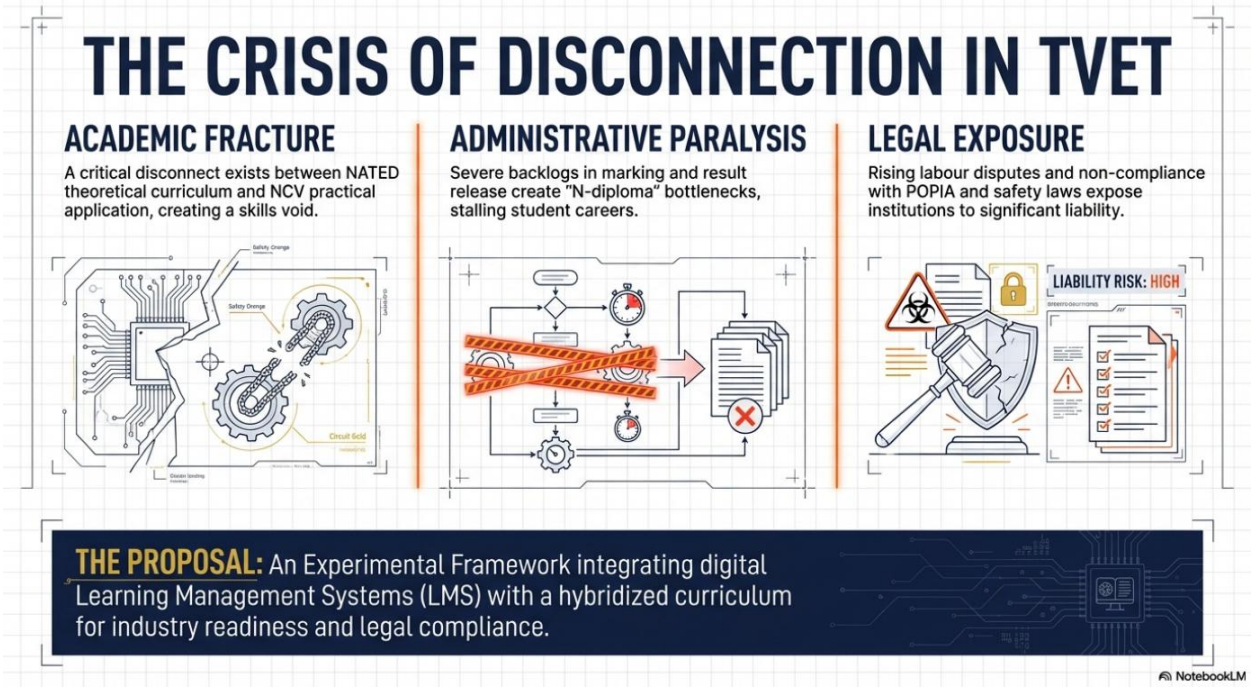
---

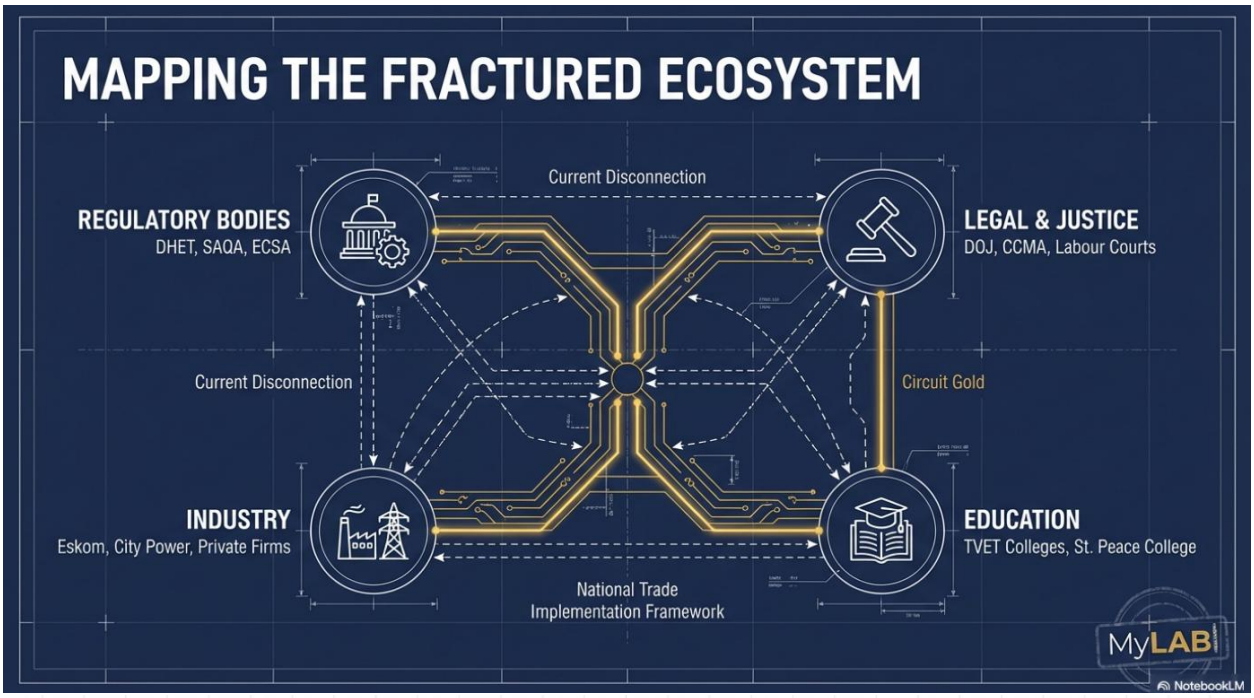
5. Summary of Delivery Norms

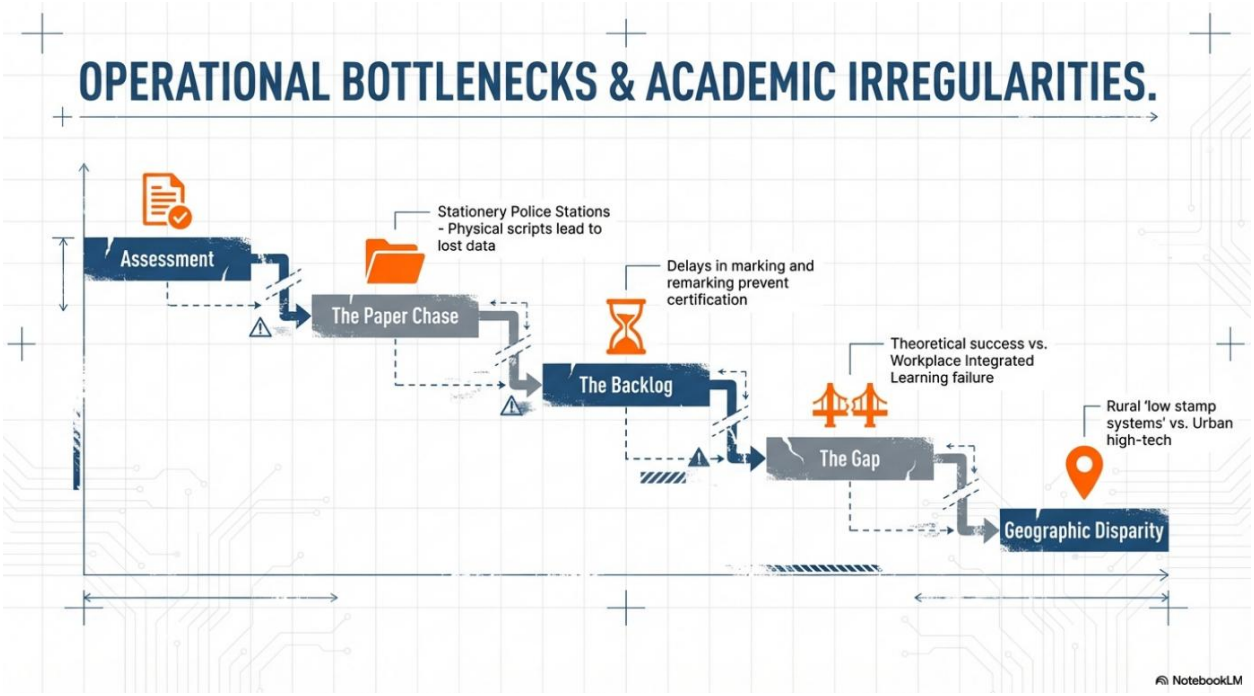
To complete the bibliographic requirement:

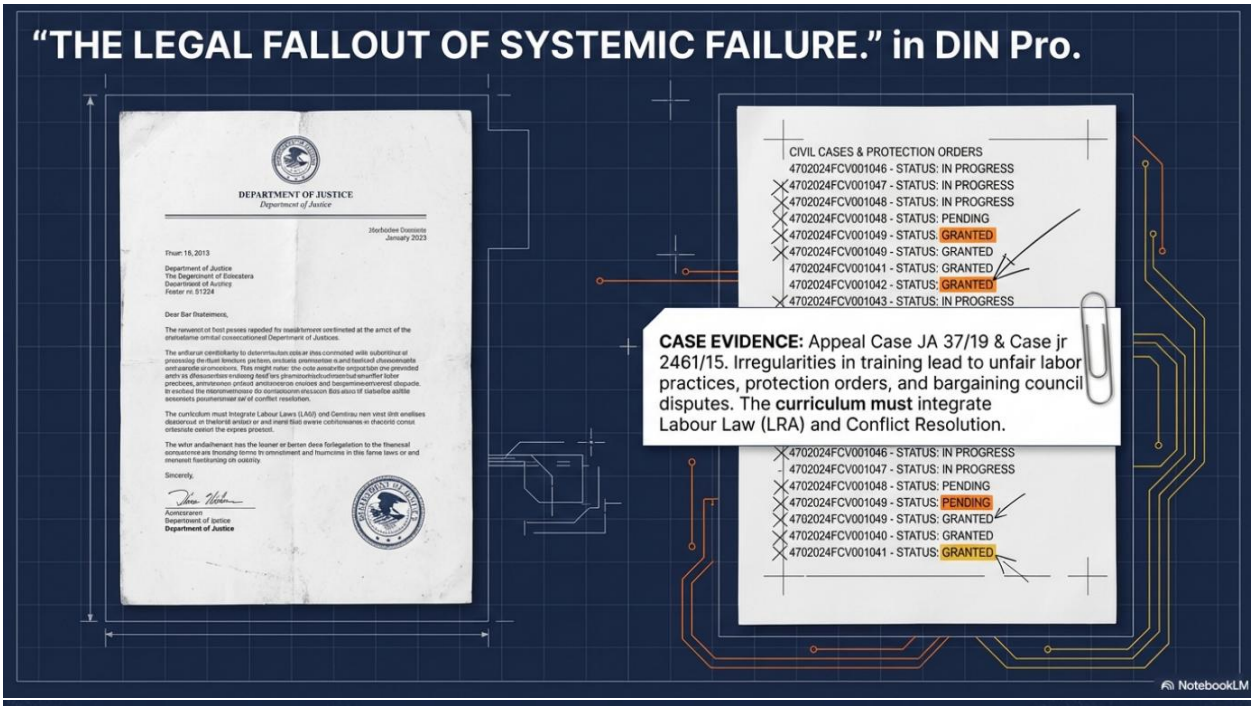
- **Mechanical:** SANS 10111 (Ensuring orthographic views meet RSA TVET standards).
- **Electrical:** IEC 60617 (Correct use of contactors and sensor symbols).
- **Data:** ISO 128 (General presentation and line-weight management).

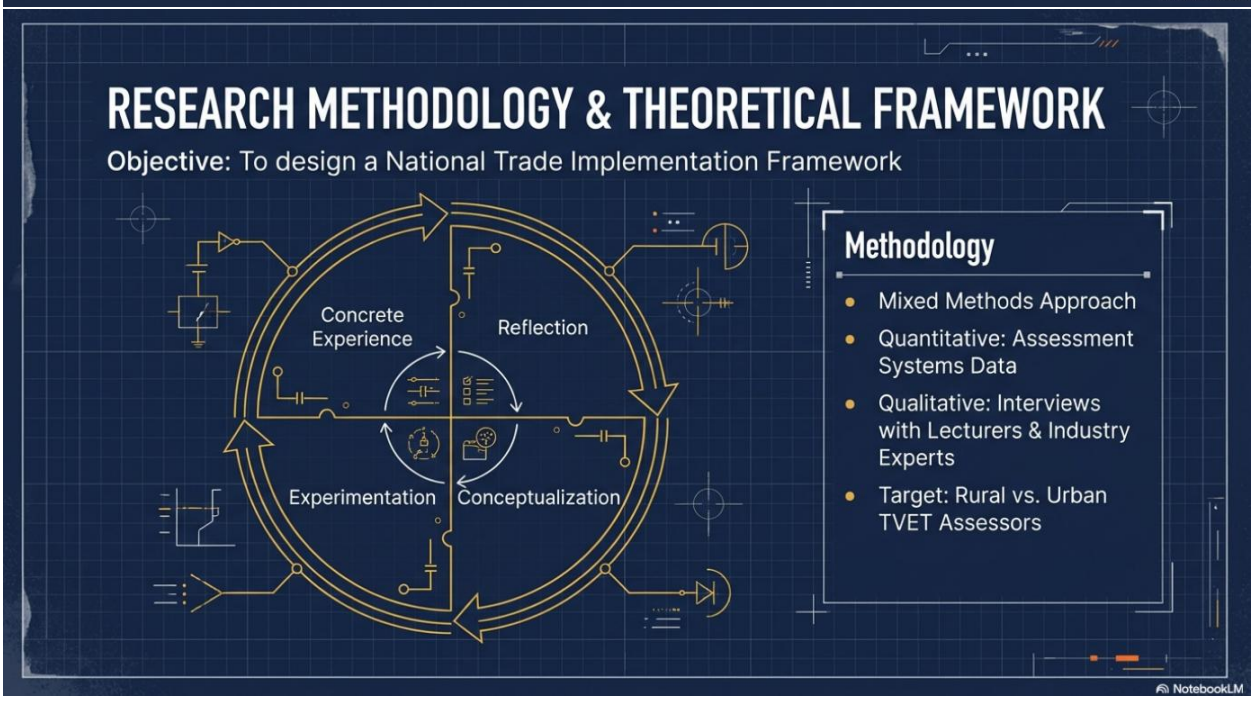
INTEGRATED FRAMEWORKS FOR VOCATIONAL ENGINEERING.
Bridging Policy, Industry, and Pedagogy in South Africa.
A Master's/Doctoral Thesis Proposal & Strategic Intervention
Researcher: Tshingombe Tshitadi (Facilitator, Researcher & Developer)
elektor
Mein eigt RISC-V-
Internet of Things
Bluetooth Low Energy
mit ESP32-C3 and ESP32
Drahtlose Applikationen
elektorMAG
Ultro-& LE Electronic
NotebookLM

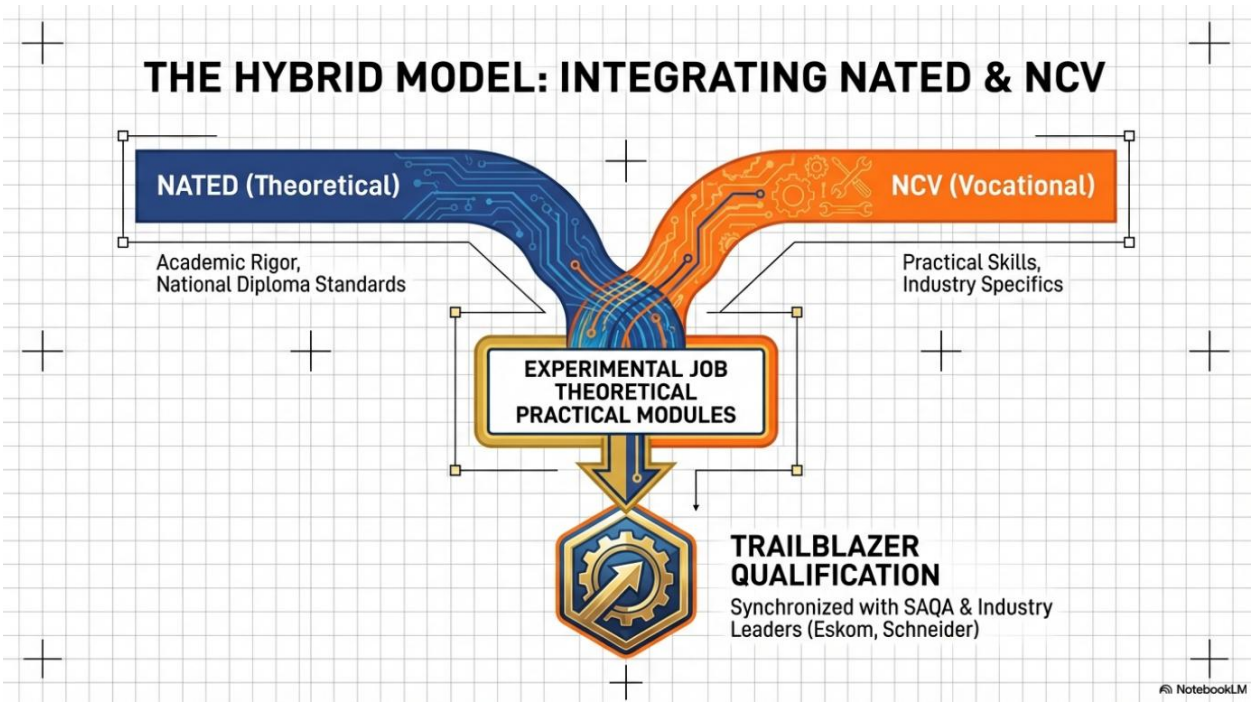

THE CRISIS OF DISCONNECTION IN TVET
ACADEMIC FRACTURE
A critical disconnect exists between NATED theoretical curriculum and NCV practical application, creating a skills void.
ADMINISTRATIVE PARALYSIS
Severe backlogs in marking and result release create "N-diploma" bottlenecks, stalling student careers.
LEGAL EXPOSURE
Rising labour disputes and non-compliance with POPIA and safety laws expose institutions to significant liability.
LIABILITY RISK: HIGH
THE PROPOSAL: An Experimental Framework integrating digital Learning Management Systems (LMS) with a hybridized curriculum for industry readiness and legal compliance.
NotebookLM

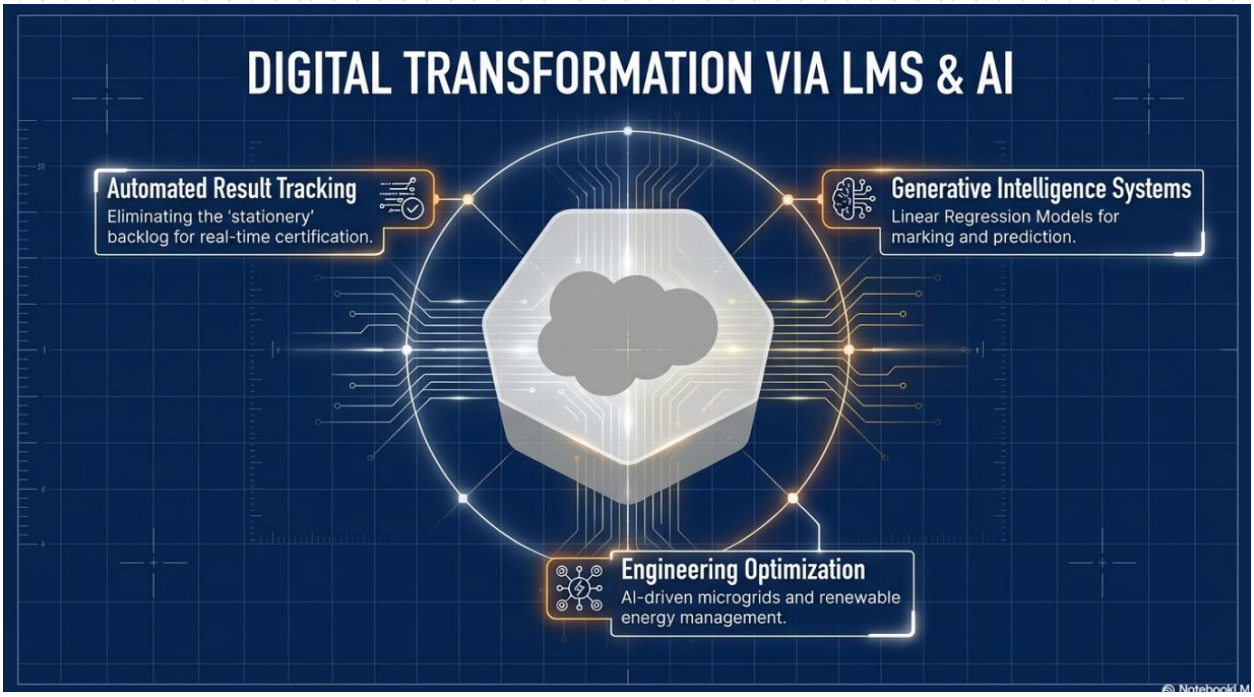

MAPPING THE FRACTURED ECOSYSTEM
REGULATORY BODIES
DHET, SAQA, ECSA
Current Disconnection
LEGAL & JUSTICE
DOJ, CCMA, Labour Courts
Current Disconnection
Circuit Gold
INDUSTRY
Eskom, City Power, Private Firms
EDUCATION
TVET Colleges, St. Peace College
National Trade
Implementation Framework
MyLAB
NotebookLM

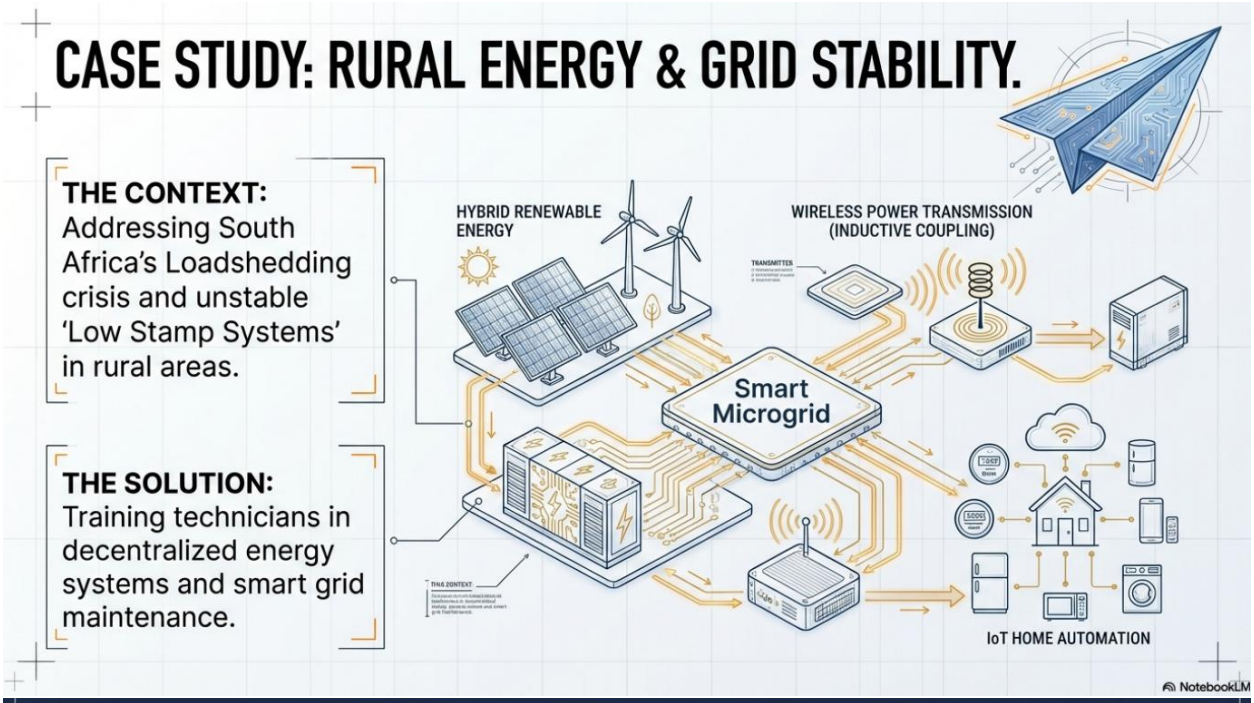

OPERATIONAL BOTTLENECKS & ACADEMIC IRREGULARITIES.
Assessment
Stationery Police Stations - Physical scripts lead to lost data
The Paper Chase
Delays in marking and remarking prevent certification
The Backlog
Theoretical success vs. Workplace Integrated Learning failure
The Gap
Rural 'low stamp systems' vs. Urban high-tech
Geographic Disparity
NotebookLM

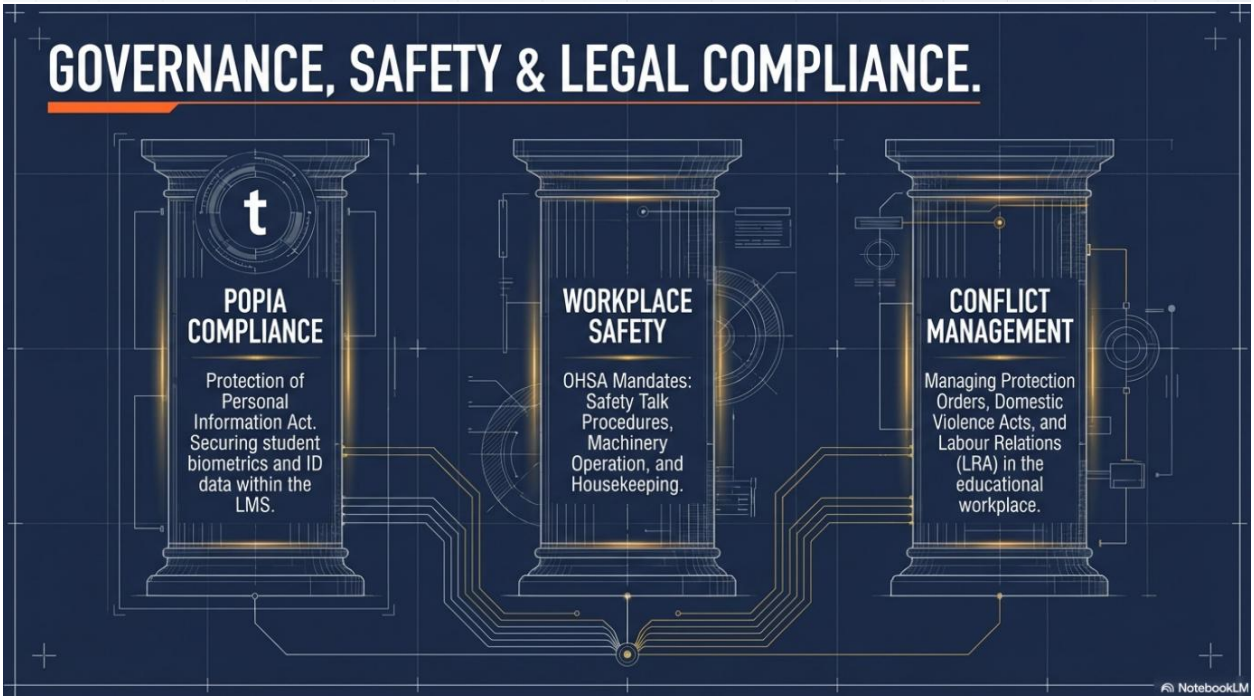

"THE LEGAL FALLOUT OF SYSTEMIC FAILURE." in DIN Pro.
DEPARTMENT OF JUSTICE
Department of Justice
January 2023
Dear Bar thatelmecs,
Sincerely,
Department of Justice
CIVIL CASES & PROTECTION ORDERS
4702024FCV001046 - STATUS: IN PROGRESS
4702024FCV001047 - STATUS: IN PROGRESS
4702024FCV001048 - STATUS: IN PROGRESS
4702024FCV001048 - STATUS: PENDING
4702024FCV001049 - STATUS: GRANTED
4702024FCV001049 - STATUS: GRANTED
4702024FCV001041 - STATUS: GRANTED
4702024FCV001042 - STATUS: GRANTED
4702024FCV001043 - STATUS: IN PROGRESS
CASE EVIDENCE: Appeal Case JA 37/19 & Case jr 2461/15. Irregularities in training lead to unfair labor practices, protection orders, and bargaining council disputes. The curriculum must integrate Labour Law (LRA) and Conflict Resolution.
4702024FCV001046 - STATUS: IN PROGRESS
4702024FCV001047 - STATUS: IN PROGRESS
4702024FCV001048 - STATUS: PENDING
4702024FCV001049 - STATUS: PENDING
4702024FCV001049 - STATUS: GRANTED
4702024FCV001040 - STATUS: GRANTED
4702024FCV001041 - STATUS: GRANTED
NotebookLM


RESEARCH METHODOLOGY & THEORETICAL FRAMEWORK
Objective: To design a National Trade Implementation Framework
Concrete Experience
Reflection
Experimentation
Conceptualization
Methodology
Mixed Methods Approach
Quantitative: Assessment Systems Data
Qualitative: Interviews with Lecturers & Industry Experts
Target: Rural vs. Urban TVET Assessors
NotebookLM

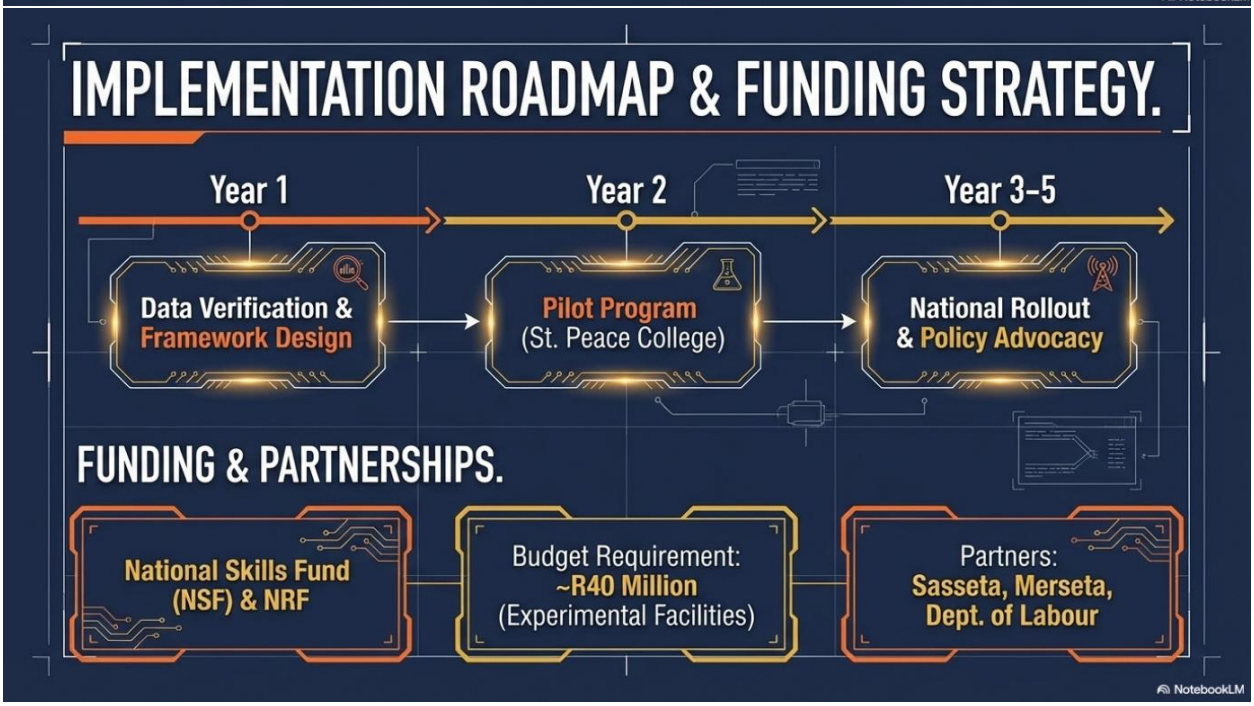

THE HYBRID MODEL: INTEGRATING NATED & NCV
NATED (Theoretical)
Academic Rigor,
National Diploma Standards
NCV (Vocational)
Practical Skills,
Industry Specifics
EXPERIMENTAL JOB
THEORETICAL
PRACTICAL MODULES
TRAILBLAZER
QUALIFICATION
Synchronized with SAQA & Industry
Leaders (Eskom, Schneider)
NotebookLM

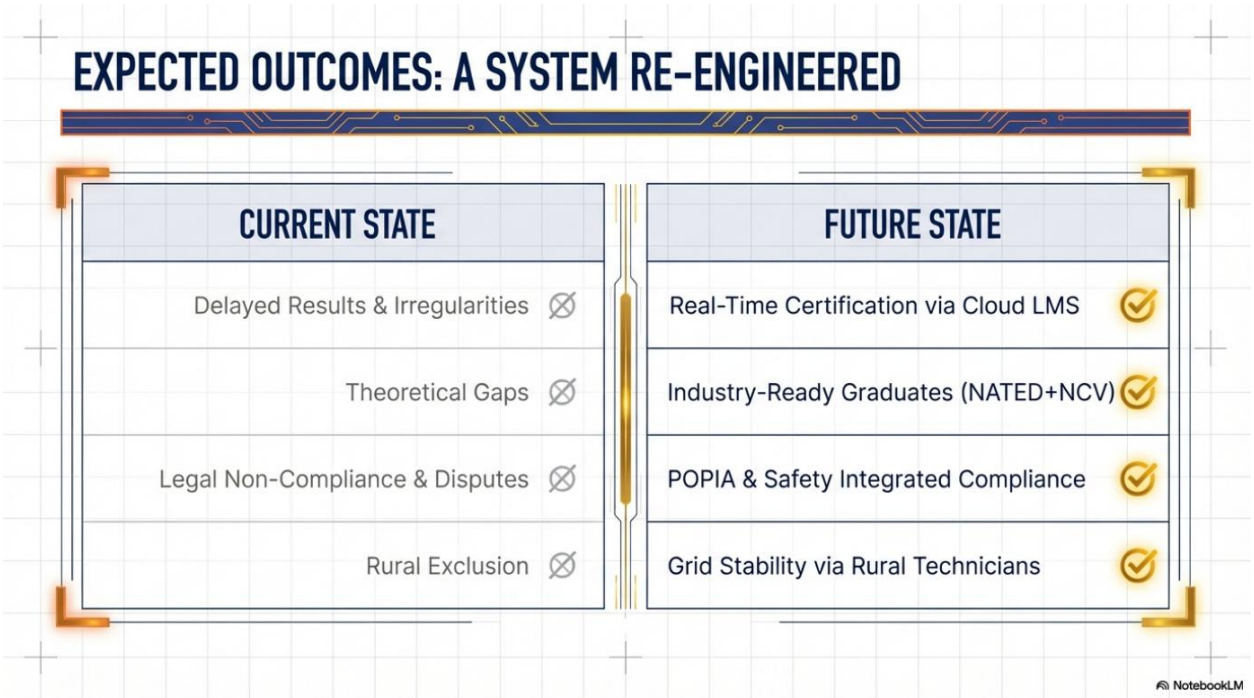

DIGITAL TRANSFORMATION VIA LMS & AI
Automated Result Tracking
Eliminating the 'stationery'
backlog for real-time certification.
Generative Intelligence Systems
Linear Regression Models for
marking and prediction.
Engineering Optimization
AI-driven microgrids and renewable
energy management.
NotebookLM


CASE STUDY: RURAL ENERGY & GRID STABILITY.
THE CONTEXT:
Addressing South Africa's Loadshedding crisis and unstable 'Low Stamp Systems' in rural areas.
THE SOLUTION:
Training technicians in decentralized energy systems and smart grid maintenance.
HYBRID RENEWABLE ENERGY
WIRELESS POWER TRANSMISSION (INDUCTIVE COUPLING)
Smart Microgrid
IoT HOME AUTOMATION
NotebookLM


GOVERNANCE, SAFETY & LEGAL COMPLIANCE.
POPIA COMPLIANCE
Protection of Personal Information Act. Securing student biometrics and ID data within the LMS.
WORKPLACE SAFETY
OHSA Mandates: Safety Talk Procedures, Machinery Operation, and Housekeeping.
CONFLICT MANAGEMENT
Managing Protection Orders, Domestic Violence Acts, and Labour Relations (LRA) in the educational workplace.
NotebookLM

EMPOWERING THE 'TRAILBLAZER' LECTURER.
MOUNTAINEER
EXPEDITIONER
THE INTERVENTION: Continuous Professional Development (CPD).
1. Upskilling in Automation & Pedagogy.
2. Induction and Mentoring Programs.
3. Psychological Safety against Bureaucracy and Setbacks.
NotebookLM


IMPLEMENTATION ROADMAP & FUNDING STRATEGY.
Year 1
Year 2
Year 3–5
Data Verification & Framework Design
Pilot Program (St. Peace College)
National Rollout & Policy Advocacy
FUNDING & PARTNERSHIPS.
National Skills Fund (NSF) & NRF
Budget Requirement: ~R40 Million (Experimental Facilities)
Partners: Sasseta, Merseta, Dept. of Labour
NotebookLM


EXPECTED OUTCOMES: A SYSTEM RE-ENGINEERED
CURRENT STATE
Delayed Results & Irregularities
Theoretical Gaps
Legal Non-Compliance & Disputes
Rural Exclusion
FUTURE STATE
Real-Time Certification via Cloud LMS
Industry-Ready Graduates (NATED+NCV)
POPIA & Safety Integrated Compliance
Grid Stability via Rural Technicians
NotebookLM

RE-ENGINEERING THE SOCIAL CONTRACT.
TSHINGOMBE TSHITADI
Facilitator | Researcher | Trailblazer
"Fixing the pipeline from education to employment to ensure a stable, powered, and legally sound South Africa."
SUPPORT THE NATIONAL TRADE IMPLEMENTATION FRAMEWORK.
NotebookLM

Integrated Frameworks for Vocational Engineering Education

Bridging the Gap Between NATED/NCV Theory, Industry Needs, and Rural Development in South Africa

Tshingombe Tshitadi Fiston | M.Eng Candidate & Facilitator

MyLab

LABORATORY CONTEXT

NotebookLM

Executive Summary

The Challenge

Systemic irregularities, assessment backlogs, and a "broken bridge" between academic theory and industrial practice in South African African TVET colleges.

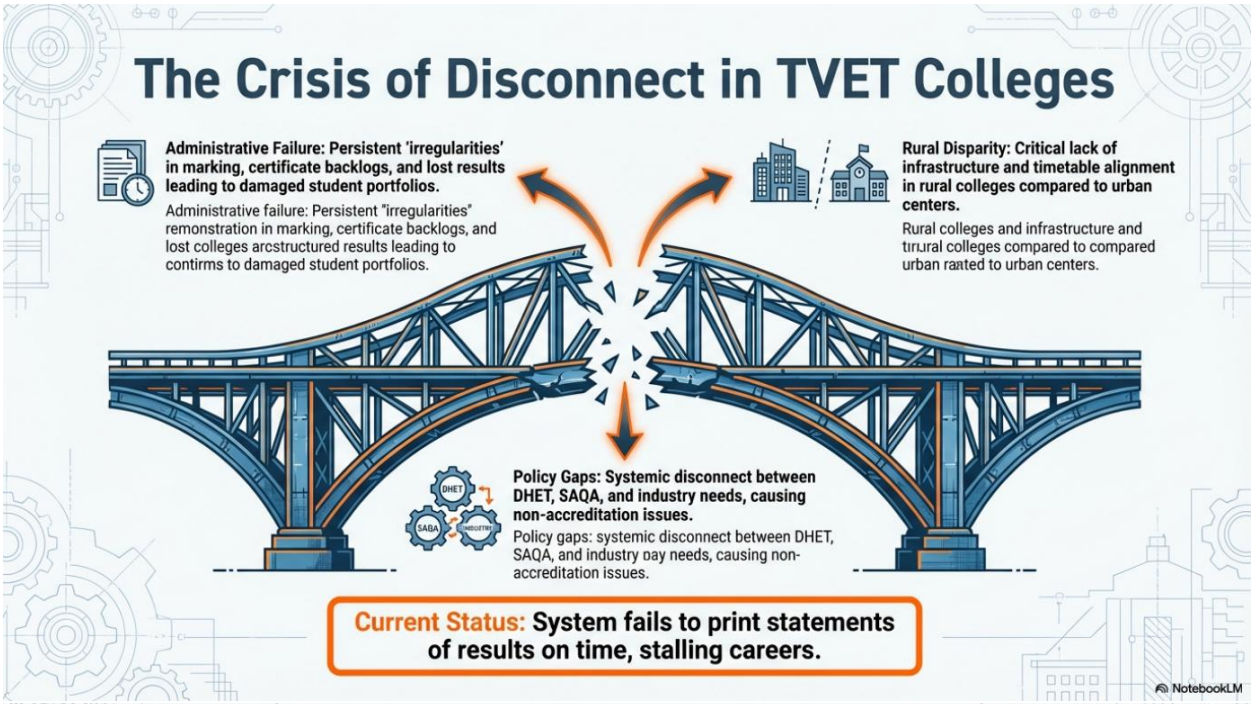
The Proposal

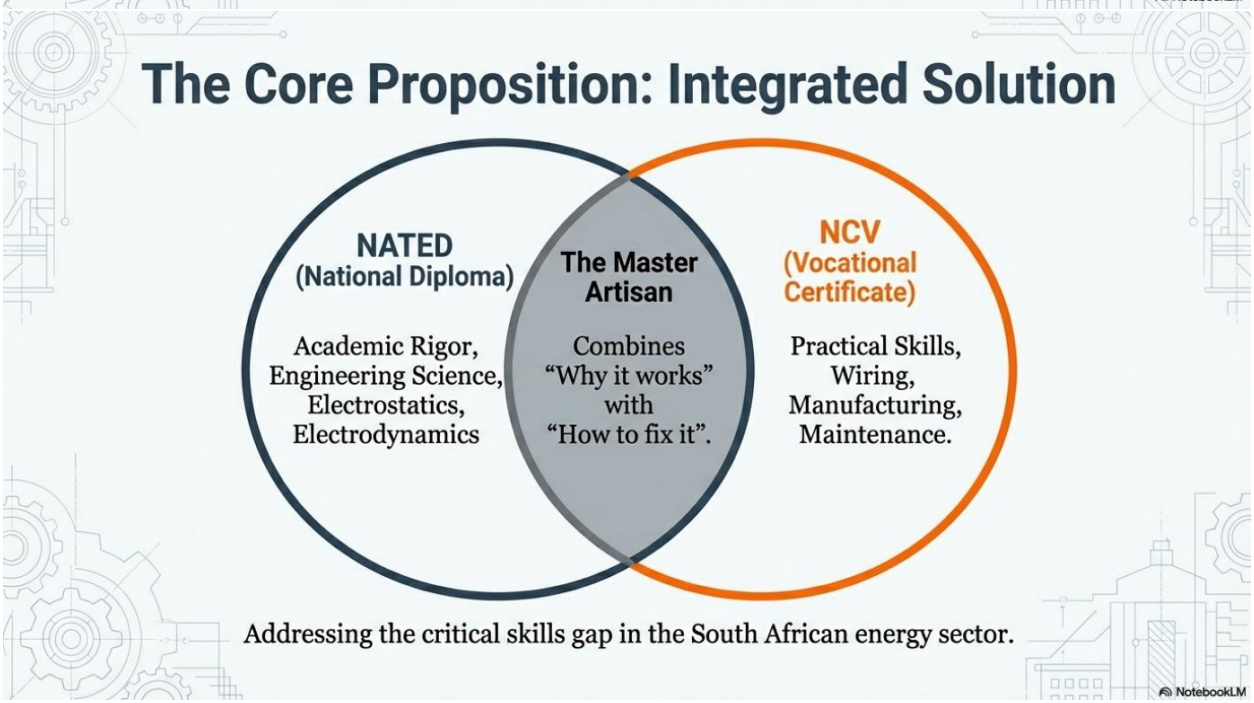
A hybrid framework integrating National Diploma (NATED) and National Certificate Vocational (NCV) supported by advanced Learning Learning Management Systems (LMS).

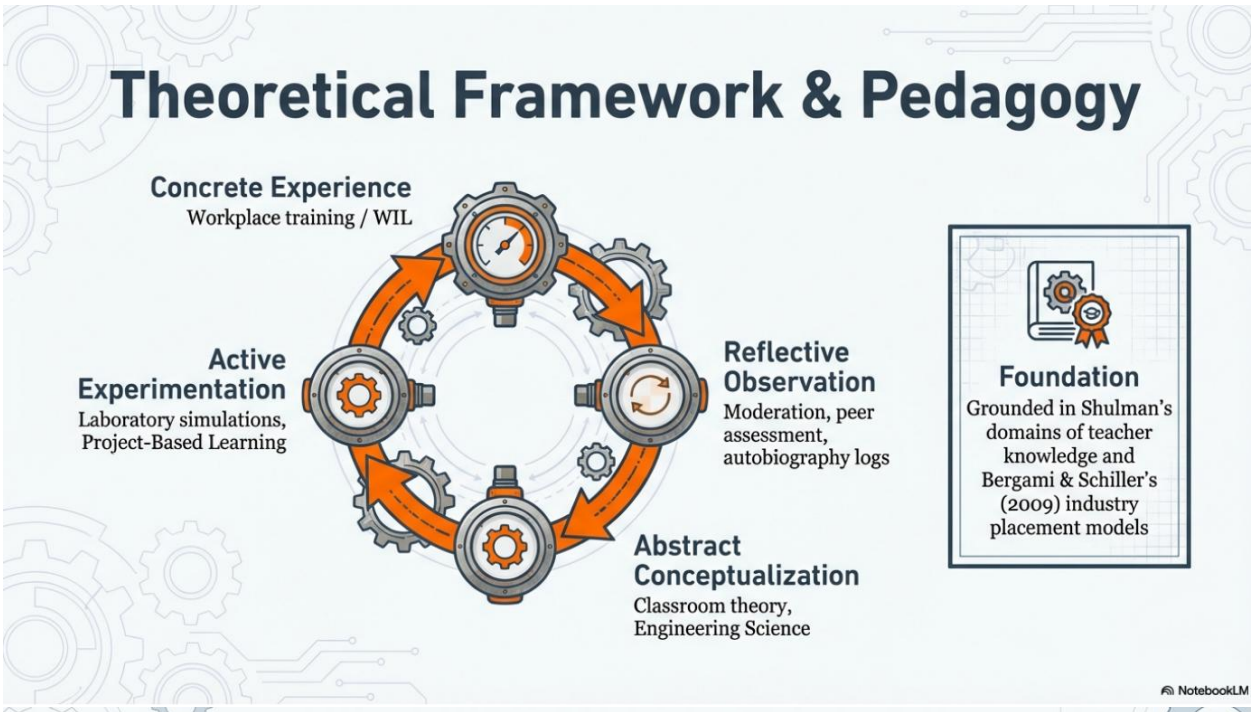
The Strategic Goal

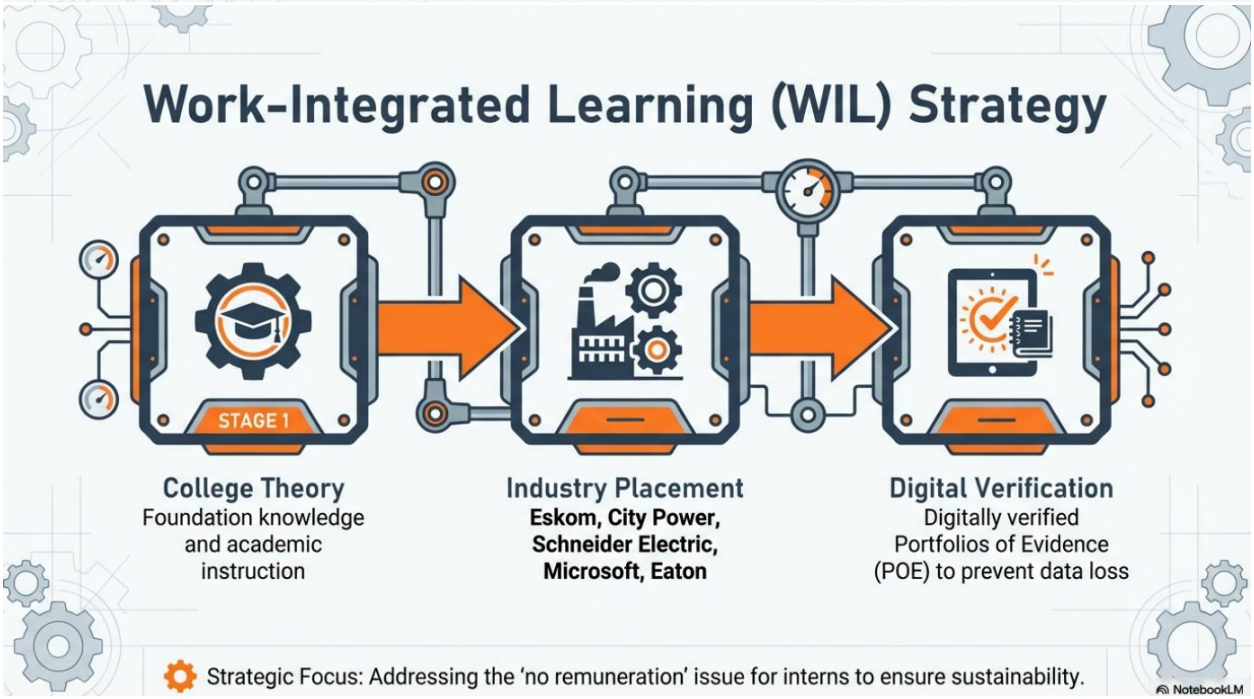
To produce industry-ready electrical engineers capable of addressing South Africa's energy crisis, targeting key utilities like Eskom and City Power.

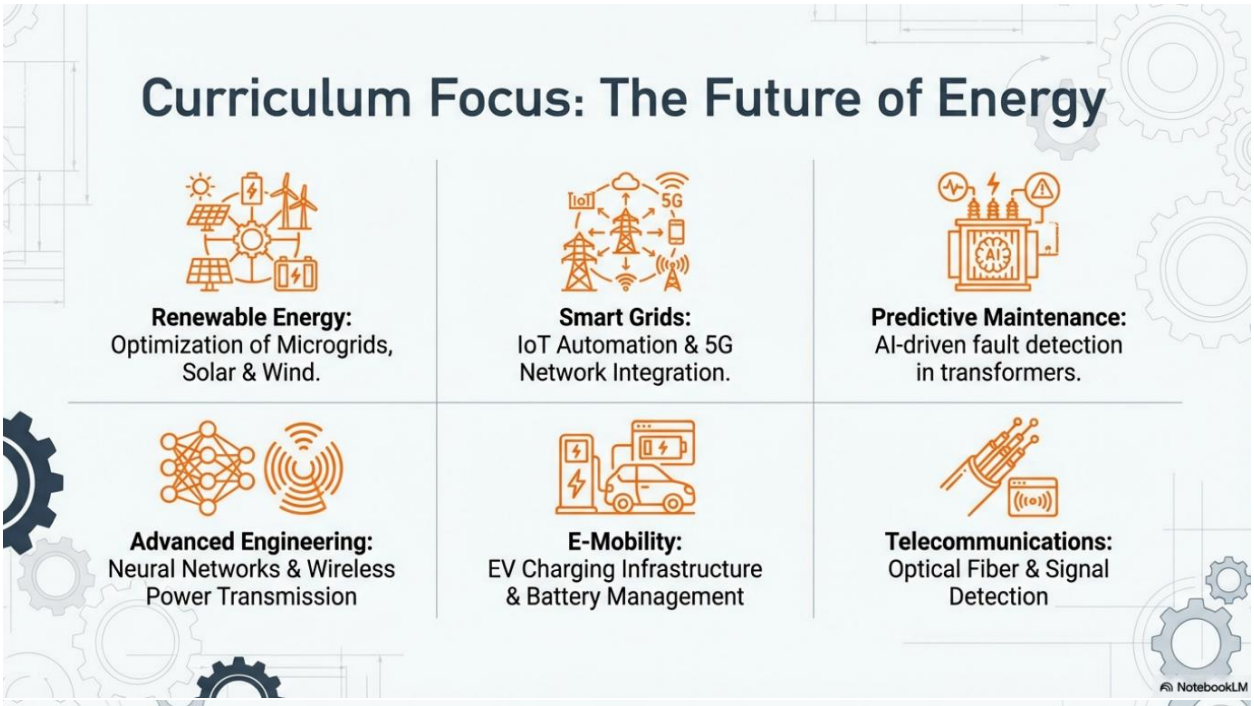
NotebookLM

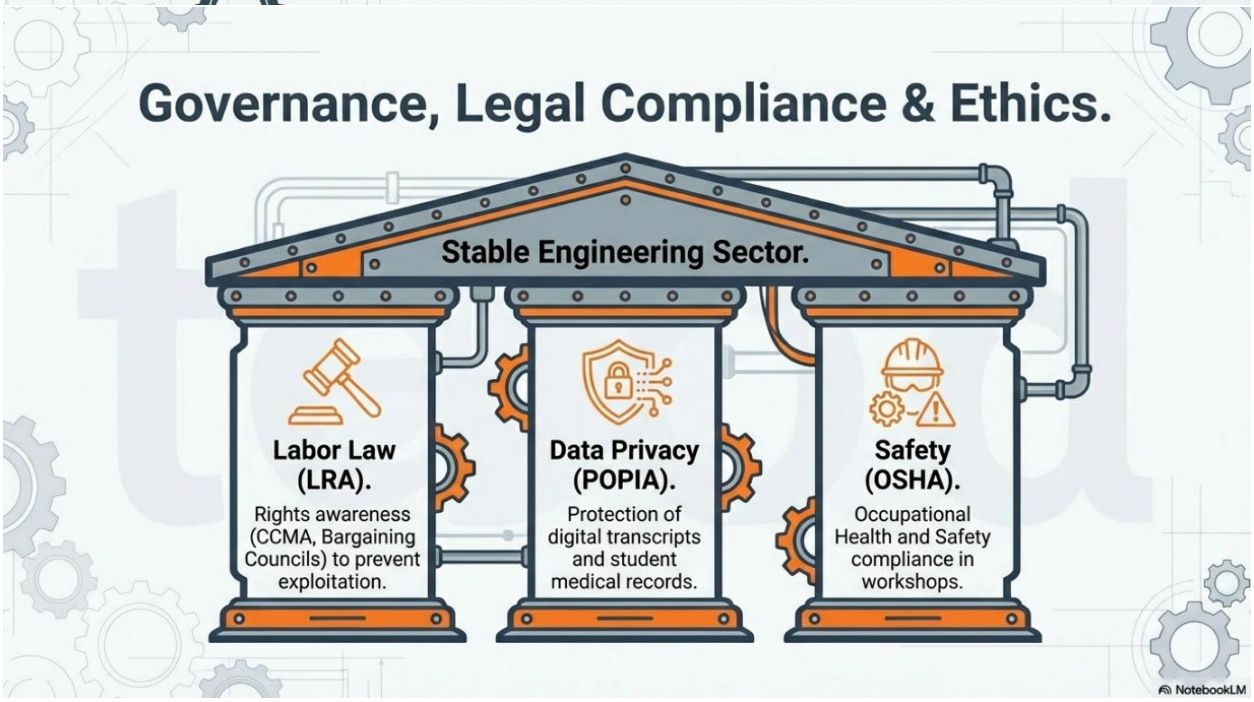

The Crisis of Disconnect in TVET Colleges
Administrative Failure: Persistent 'irregularities' in marking, certificate backlogs, and lost results leading to damaged student portfolios.
Administrative failure: Persistent "irregularities" remonstration in marking, certificate backlogs, and lost colleges arcstructured results leading to contirms to damaged student portfolios.
Rural Disparity: Critical lack of infrastructure and timetable alignment in rural colleges compared to urban centers.
Rural colleges and infrastructure and tirural colleges compared to compared urban ranted to urban centers.
Policy Gaps: Systemic disconnect between DHET, SAQA, and industry needs, causing non-accreditation issues.
Policy gaps: systemic disconnect between DHET, SAQA, and industry oay needs, causing non-accreditation issues.
Current Status: System fails to print statements of results on time, stalling careers.
NotebookLM


The Core Proposition: Integrated Solution
NATED
(National Diploma)
Academic Rigor, Engineering Science, Electrostatics, Electrodynamics
The Master Artisan
Combines "Why it works" with "How to fix it".
NCV
(Vocational Certificate)
Practical Skills, Wiring, Manufacturing, Maintenance.
Addressing the critical skills gap in the South African energy sector.
NotebookLM


Theoretical Framework & Pedagogy
Concrete Experience
Workplace training / WIL
Active Experimentation
Laboratory simulations, Project-Based Learning
Reflective Observation
Moderation, peer assessment, autobiography logs
Abstract Conceptualization
Classroom theory, Engineering Science
Foundation
Grounded in Shulman's domains of teacher knowledge and Bergami & Schiller's (2009) industry placement models
NotebookLM


Work-Integrated Learning (WIL) Strategy
STAGE 1
College Theory
Foundation knowledge and academic instruction
Industry Placement
Eskom, City Power, Schneider Electric, Microsoft, Eaton
Digital Verification
Digitally verified Portfolios of Evidence (POE) to prevent data loss
Strategic Focus: Addressing the 'no remuneration' issue for interns to ensure sustainability.
NotebookLM


Curriculum Focus: The Future of Energy
Renewable Energy:
Optimization of Microgrids, Solar & Wind.
Smart Grids:
IoT Automation & 5G Network Integration.
Predictive Maintenance:
AI-driven fault detection in transformers.
Advanced Engineering:
Neural Networks & Wireless Power Transmission
E-Mobility:
EV Charging Infrastructure & Battery Management
Telecommunications:
Optical Fiber & Signal Detection
NotebookLM


Governance, Legal Compliance & Ethics.
Stable Engineering Sector.
Labor Law (LRA).
Rights awareness (CCMA, Bargaining Councils) to prevent exploitation.
Data Privacy (POPIA).
Protection of digital transcripts and student medical records.
Safety (OSHA).
Occupational Health and Safety compliance in workshops.
NotebookLM

The Rural Development Strategy.

The Challenge.

Misaligned timetables, lack of resources, and geographic isolation.

The Solution.

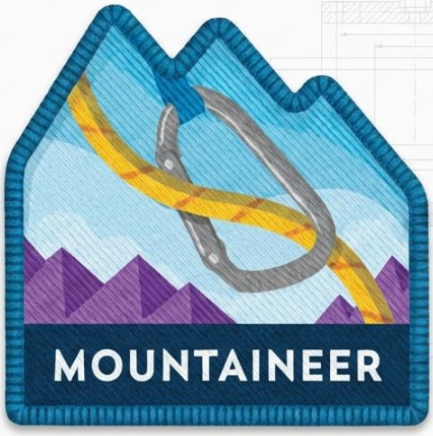
- **Mobile Training Units:** Bringing experimental facilities to the village.
- **Community Integration:** Leveraging local languages (Swahili, Isizulu) for technical concepts.
- **Social Justice:** Engineering as a tool for economic upliftment.

NotebookLM

Engineering as a Tool for Social Justice.

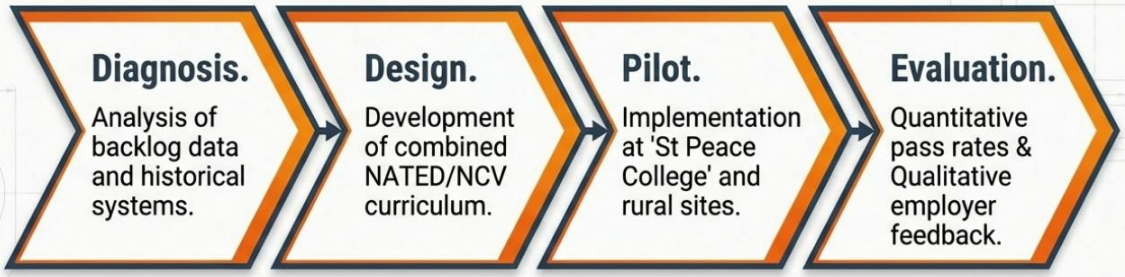
"Reliable energy is a human right. Fair labor practices are a prerequisite for a stable economy."

- **Activism Row:** Connecting technical skills to Human Rights.
- **Institutional Alignment:** Partnering with Social Justice Organizations for equitable funding.
- **Economic Rights:** Ensuring fair remuneration for student labor.



NotebookLM

Research Methodology & Design.



Data Sources: Institutional records, SAQA frameworks, and convenience sampling.

NotebookLM

Funding & Strategic Partnerships.

Software engineering for digital tracking.

Laboratory equipment for Active Experimentation.

Bursaries for 'cadet' engineers and rural access.

Target Funds.

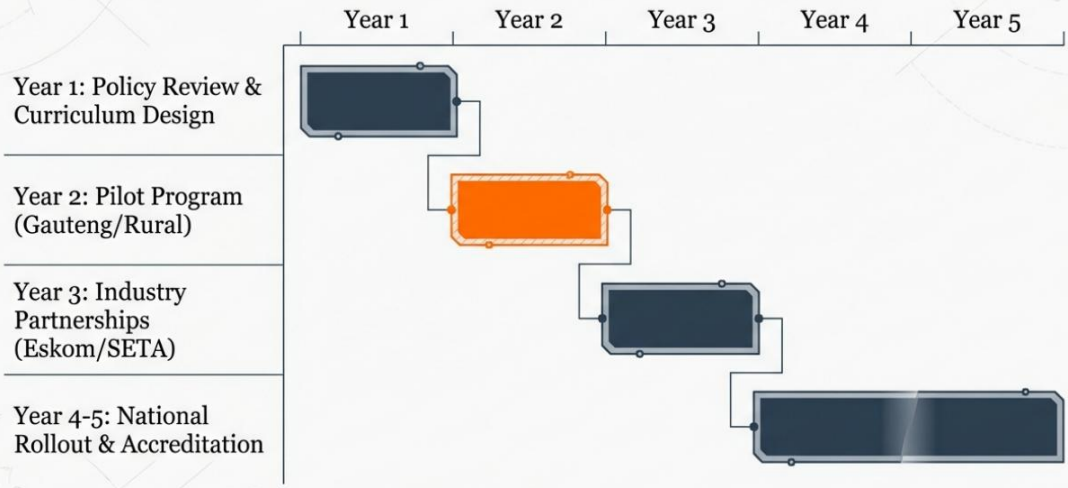
National Skills Fund (NSF)

National Research Foundation (NRF)

Grant Proposal Framework: Minimum budget allocation 40,000.00.

NotebookLM

Implementation Roadmap (5-Year Horizon)



NotebookLM

Building a Stable, Skilled Nation.

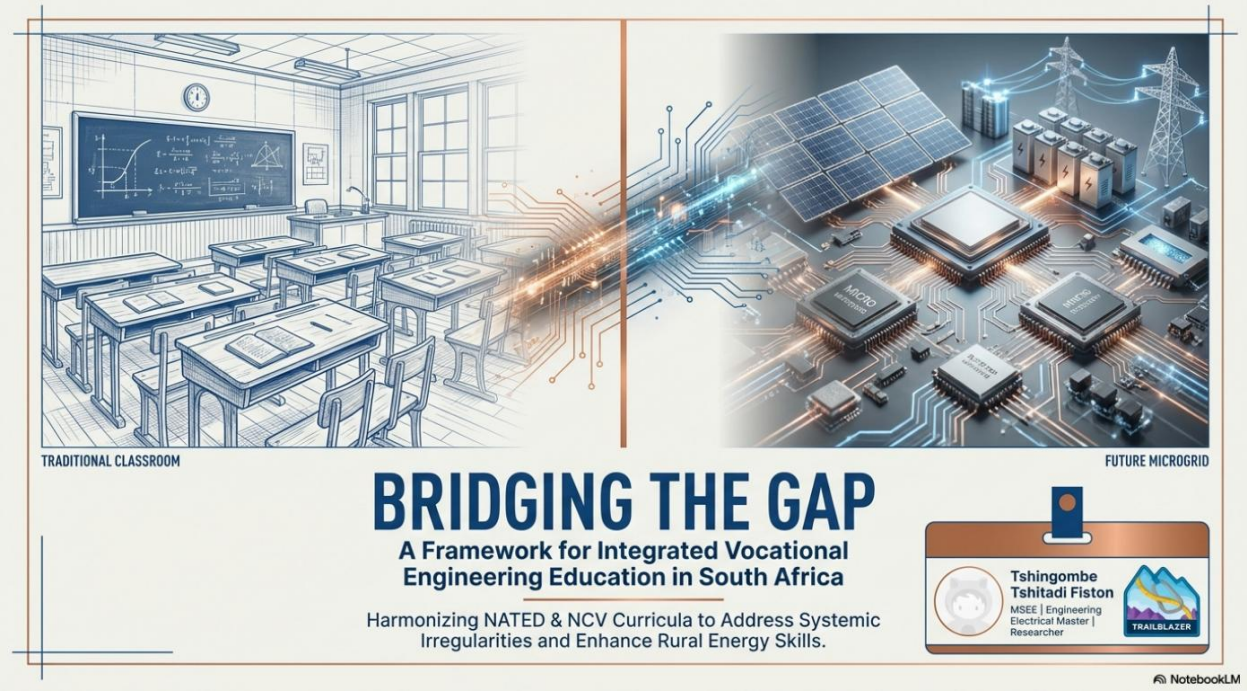
We are not just teaching circuits; we are building a legally sound, technically advanced, and socially equitable education system.

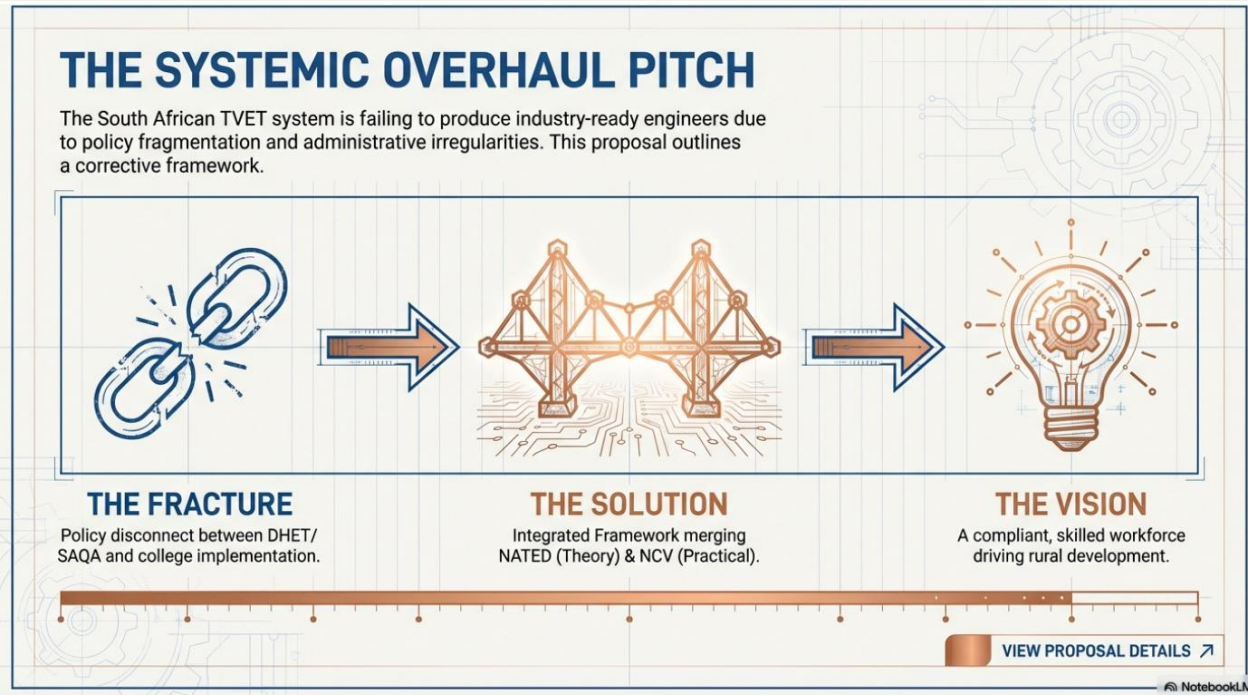
Call to Action:

1. Approve Thesis Proposal.
2. Secure NSF/NRF Funding.
3. Initiate Pilot Program.

Tshingombe Tshitadi Fiston | tshitadi@tshingomesfromrms.com | [Phone 65 7690].

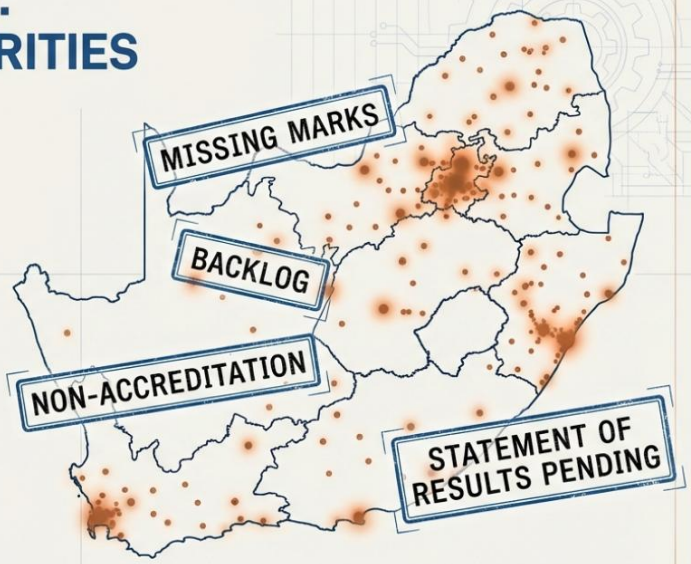
NotebookLM


TRADITIONAL CLASSROOM
FUTURE MICROGRID
BRIDGING THE GAP
A Framework for Integrated Vocational Engineering Education in South Africa
Harmonizing NATED & NCV Curricula to Address Systemic Irregularities and Enhance Rural Energy Skills.
Tshingombe Tshitadi Fiston
MSEE | Engineering Electrical Master | Researcher
TRAILBLAZER
NotebookLM


THE SYSTEMIC OVERHAUL PITCH
The South African TVET system is failing to produce industry-ready engineers due to policy fragmentation and administrative irregularities. This proposal outlines a corrective framework.
THE FRACTURE
Policy disconnect between DHET/ SAQA and college implementation.
THE SOLUTION
Integrated Framework merging NATED (Theory) & NCV (Practical).
THE VISION
A compliant, skilled workforce driving rural development.
VIEW PROPOSAL DETAILS
NotebookLM

DEFINING THE CRISIS: SYSTEMIC IRREGULARITIES

- **Administrative Backlogs:** Delays in marking and lost portfolios prevent certification.
- **The Rural Divide:** Critical lack of facilitators and equipment in rural TVET colleges compared to urban centers.
- **Policy Mismatch:** Conflict between DHET, SAQA, and local colleges leads to invalid results and "Druip" (failure) due to error.



NotebookLM

THE HUMAN ELEMENT: GOVERNANCE & LABOR JUSTICE

THE LECTURER'S PLIGHT

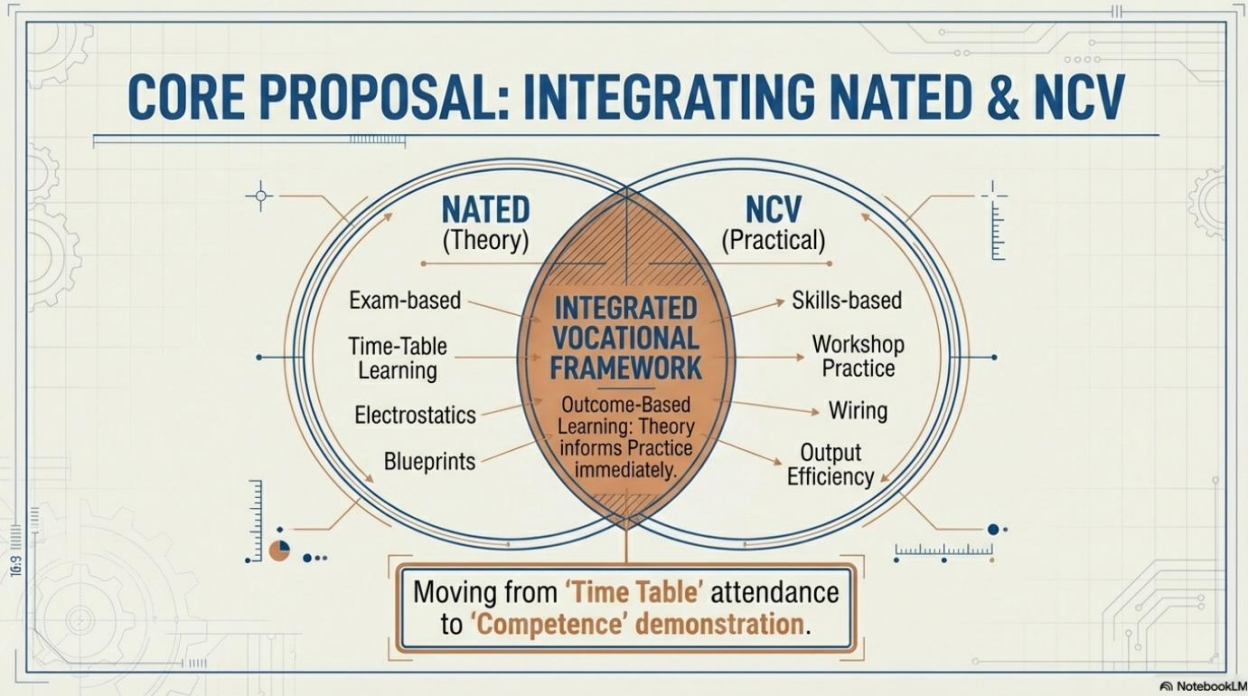
- Labor Disputes (CCMA/Labour Court Case JA 37/19)
- Unpaid wages and bargaining levy disputes
- Need for protection against workplace violence (Domestic Violence Act 116 of 1998)

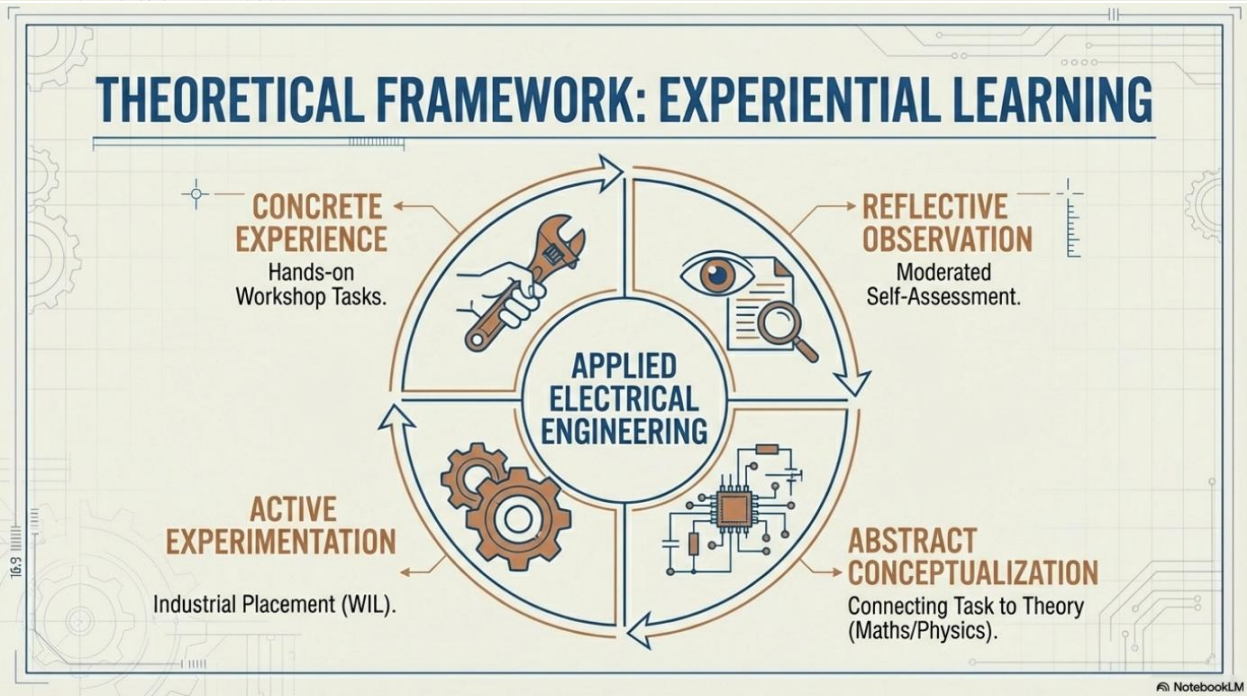
THE ADMINISTRATIVE BURDEN

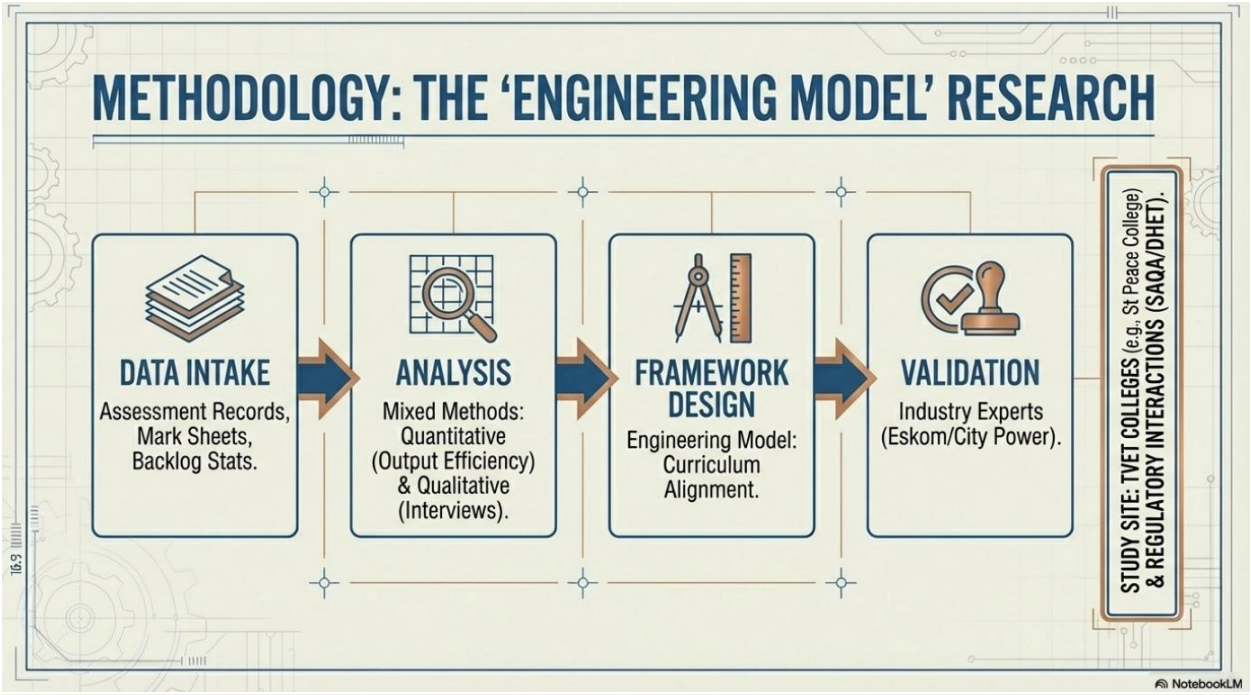
The reality of 'Referral' systems and legal compliance.

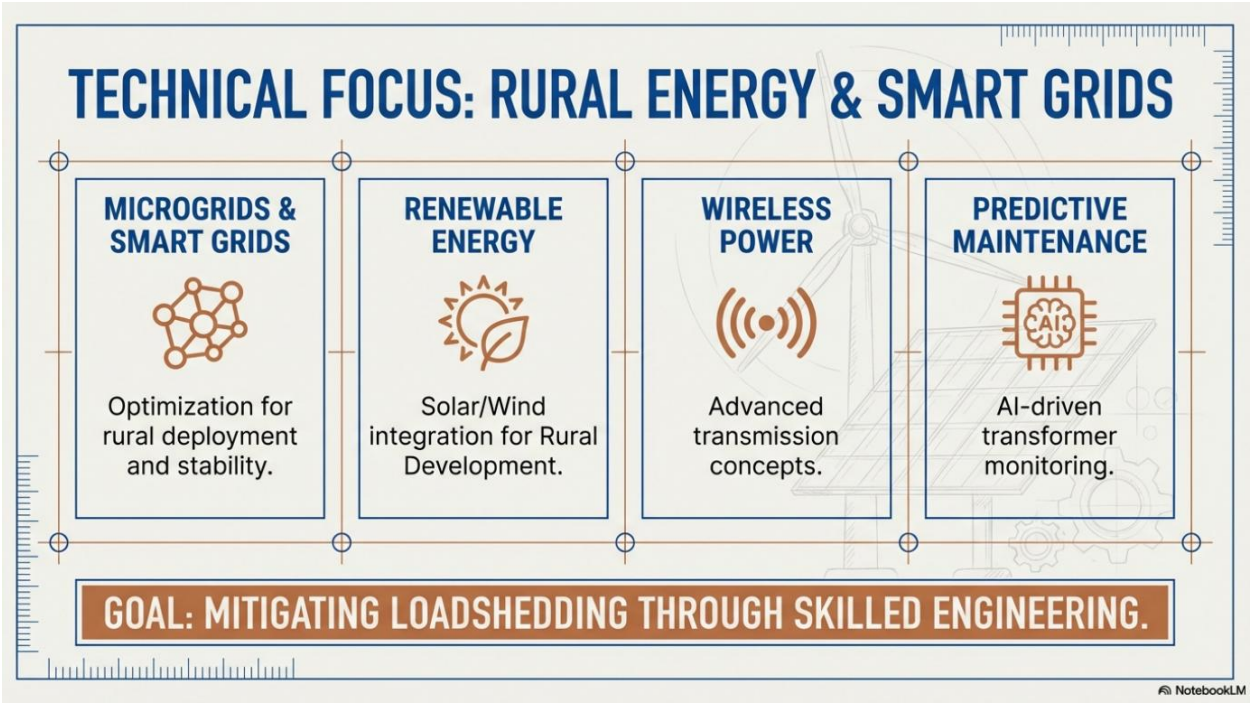
16:9

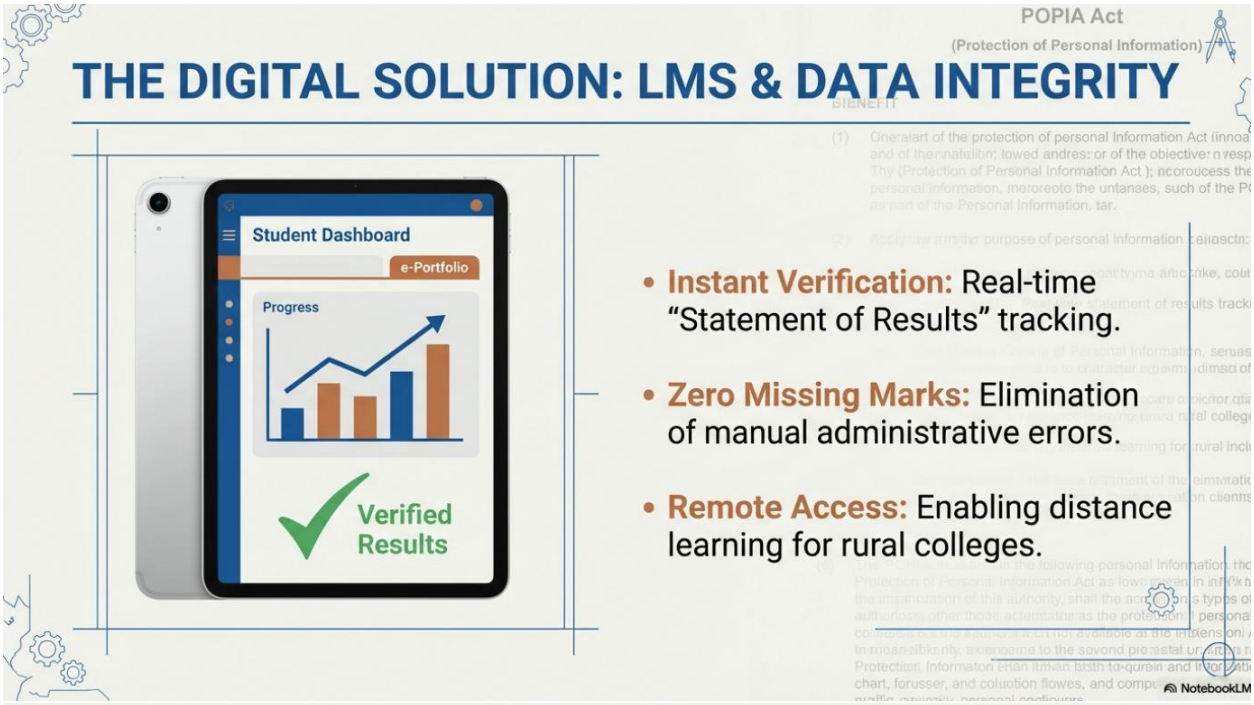
NotebookLM

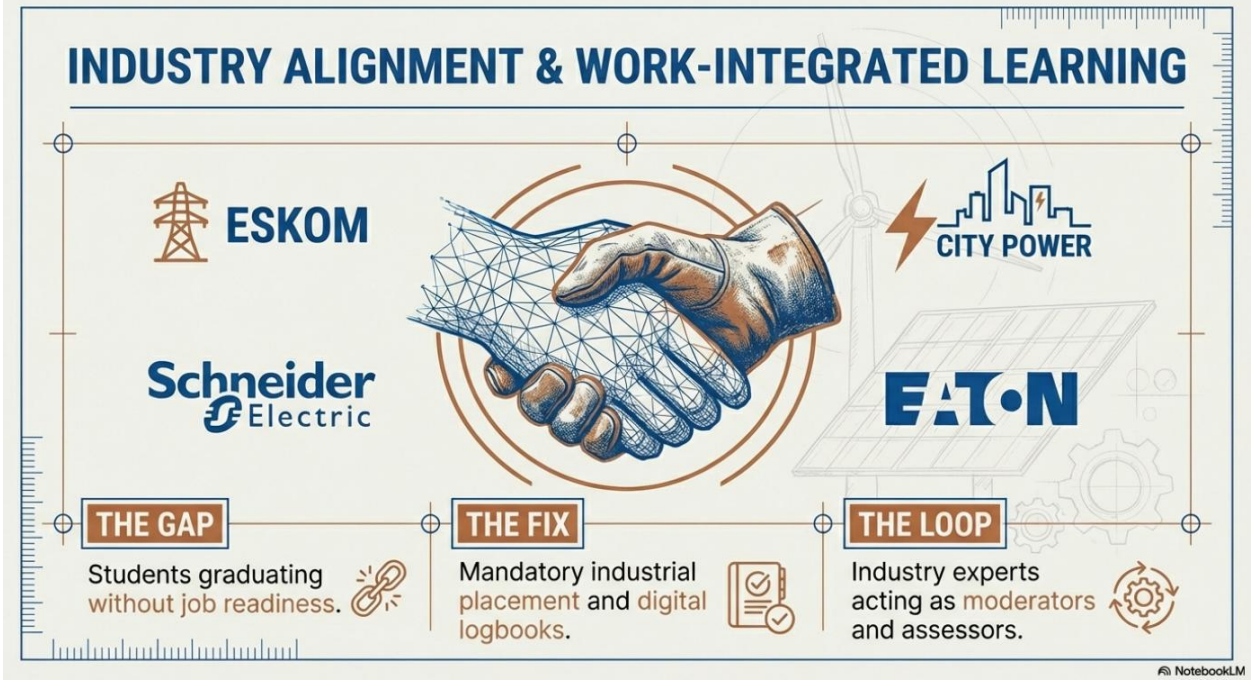

CORE PROPOSAL: INTEGRATING NATED & NCV
NATED
(Theory)
NCV
(Practical)
Exam-based
Time-Table Learning
Electrostatics
Blueprints
INTEGRATED VOCATIONAL FRAMEWORK
Outcome-Based Learning: Theory informs Practice immediately.
Skills-based
Workshop Practice
Wiring
Output Efficiency
Moving from 'Time Table' attendance to 'Competence' demonstration.
16:9
NotebookLM


THEORETICAL FRAMEWORK: EXPERIENTIAL LEARNING
CONCRETE EXPERIENCE
Hands-on Workshop Tasks.
REFLECTIVE OBSERVATION
Moderated Self-Assessment.
APPLIED ELECTRICAL ENGINEERING
ACTIVE EXPERIMENTATION
Industrial Placement (WIL).
ABSTRACT CONCEPTUALIZATION
Connecting Task to Theory (Maths/Physics).
16:9
NotebookLM

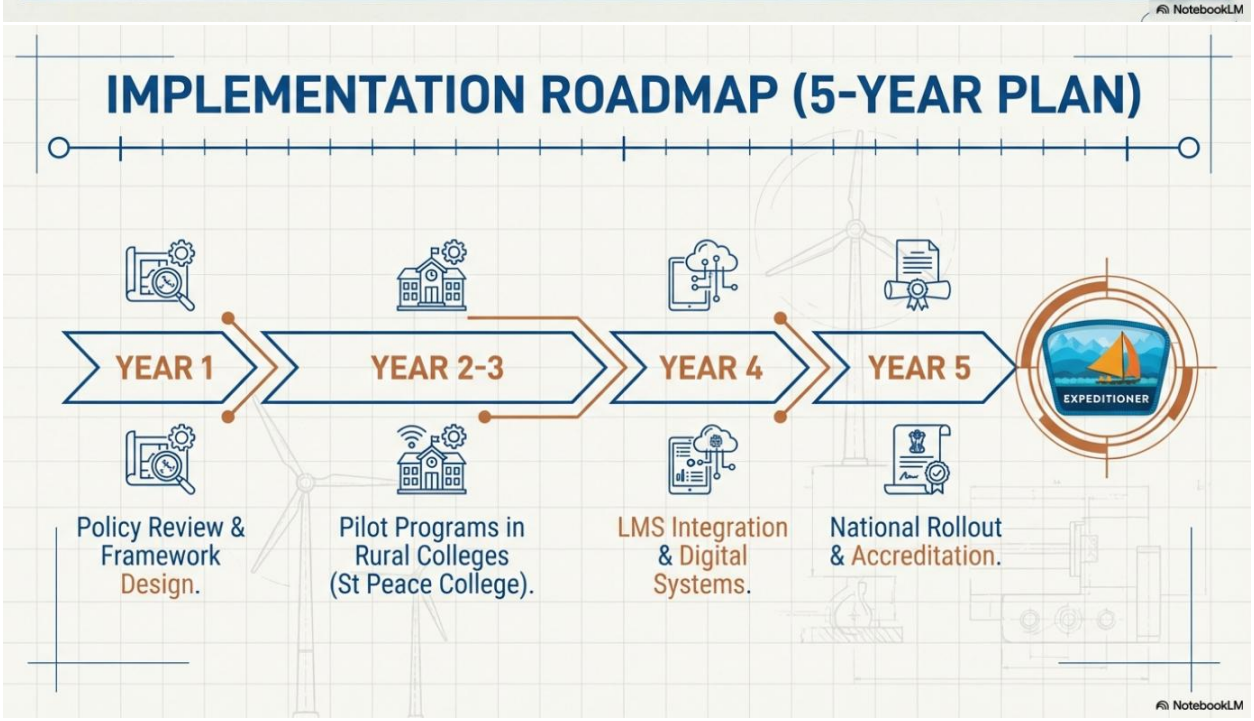

METHODOLOGY: THE 'ENGINEERING MODEL' RESEARCH
DATA INTAKE
Assessment Records, Mark Sheets, Backlog Stats.
ANALYSIS
Mixed Methods: Quantitative (Output Efficiency) & Qualitative (Interviews).
FRAMEWORK DESIGN
Engineering Model: Curriculum Alignment.
VALIDATION
Industry Experts (Eskom/City Power).
STUDY SITE: TVET COLLEGES (e.g., St Peace College) & REGULATORY INTERACTIONS (SAQA/DHET).
16:9
NotebookLM

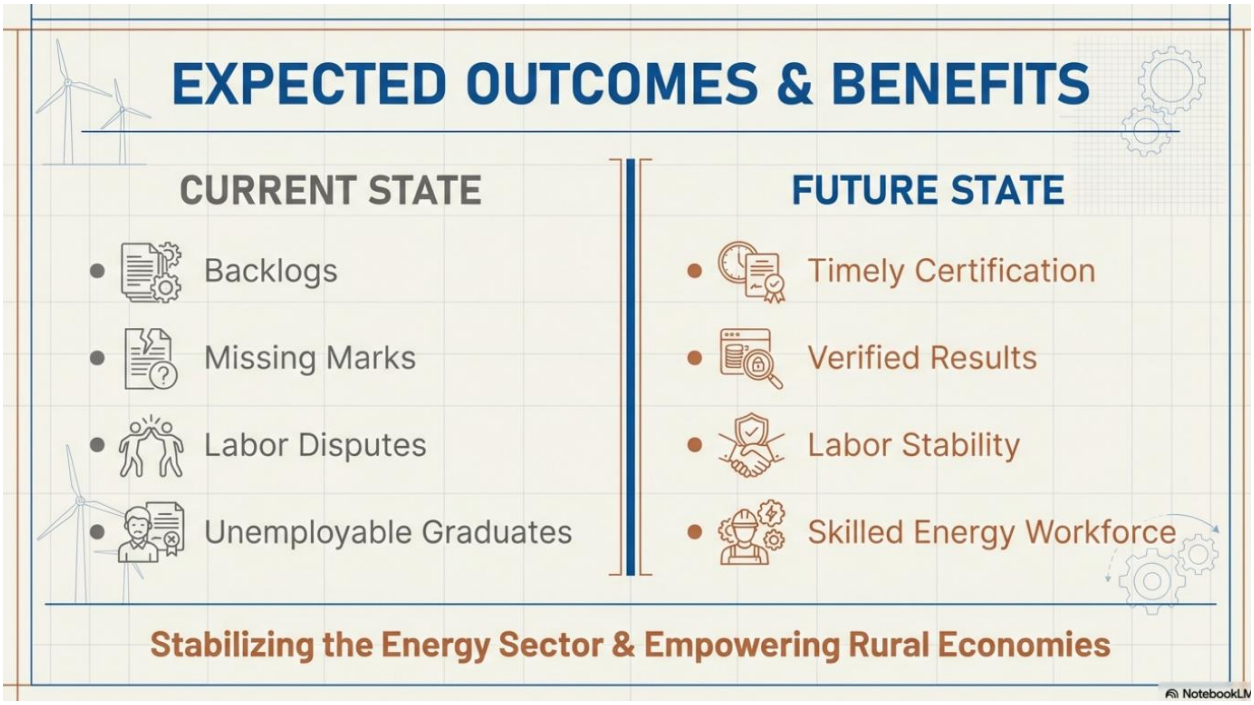

TECHNICAL FOCUS: RURAL ENERGY & SMART GRIDS
MICROGRIDS & SMART GRIDS
Optimization for rural deployment and stability.
RENEWABLE ENERGY
Solar/Wind integration for Rural Development.
WIRELESS POWER
Advanced transmission concepts.
PREDICTIVE MAINTENANCE
AI-driven transformer monitoring.
AI
GOAL: MITIGATING LOADSHEDDING THROUGH SKILLED ENGINEERING.
NotebookLM

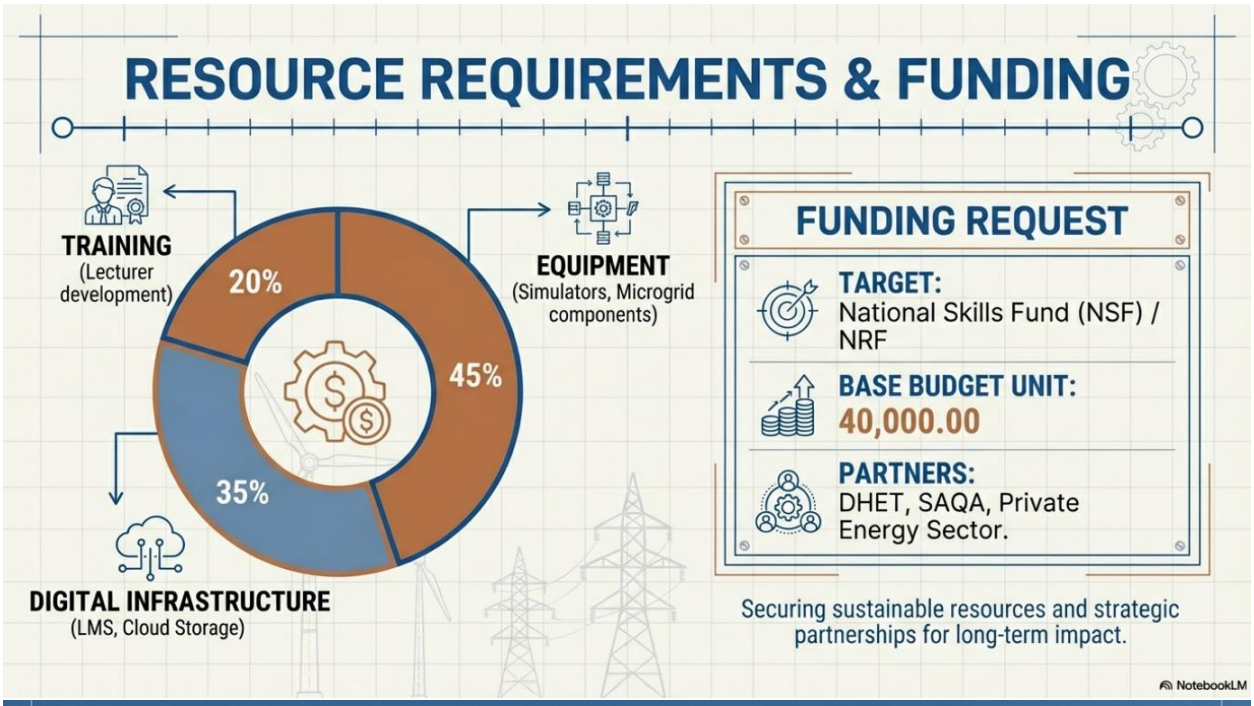

POPIA Act
(Protection of Personal Information)
THE DIGITAL SOLUTION: LMS & DATA INTEGRITY
Student Dashboard
e-Portfolio
Progress
Verified Results
• Instant Verification: Real-time "Statement of Results" tracking.
• Zero Missing Marks: Elimination of manual administrative errors.
• Remote Access: Enabling distance learning for rural colleges.
NotebookLM


INDUSTRY ALIGNMENT & WORK-INTEGRATED LEARNING
ESKOM
CITY POWER
Schneider Electric
EATON
THE GAP
Students graduating without job readiness.
THE FIX
Mandatory industrial placement and digital logbooks.
THE LOOP
Industry experts acting as moderators and assessors.
NotebookLM

GOVERNANCE, RISK, AND COMPLIANCE (GRC)
STANDARDIZATION
ISO/SANS Standards & SAQA Accreditation
LABOR STABILITY
Fair compensation & Bargaining Council agreements.
SAFETY
OHSA (Occupational Health and Safety Act) compliance.
NotebookLM

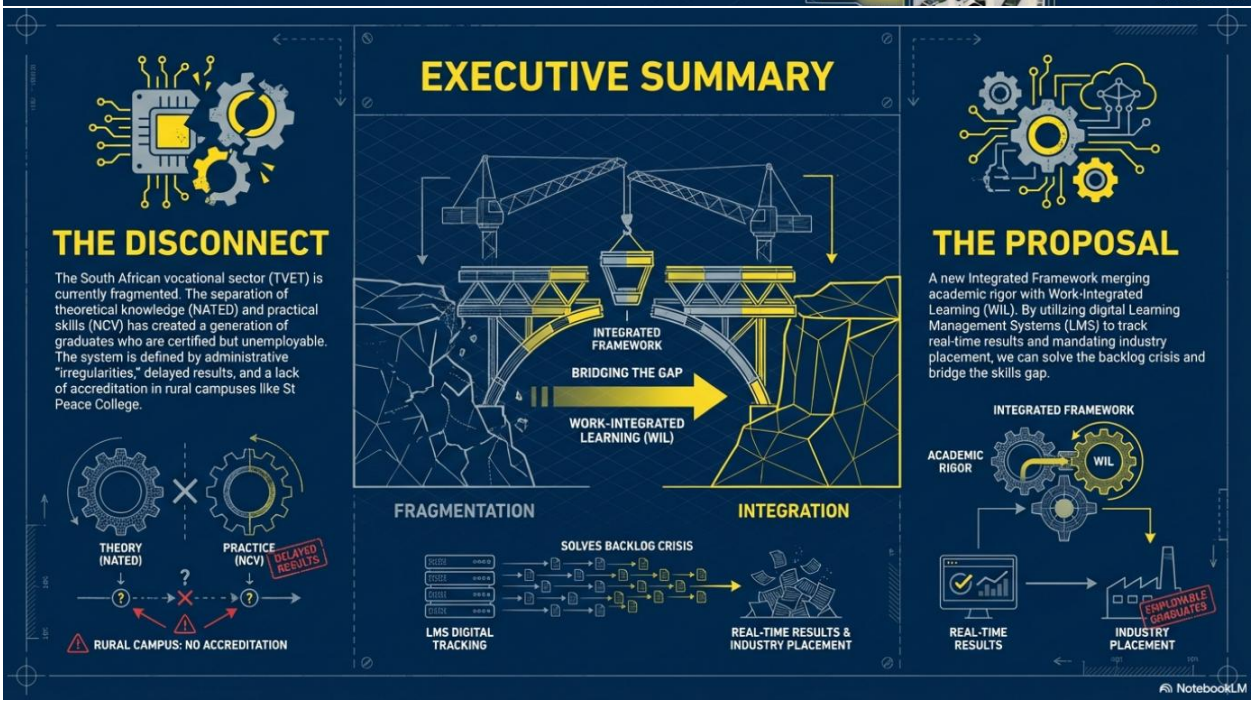

IMPLEMENTATION ROADMAP (5-YEAR PLAN)
YEAR 1
YEAR 2-3
YEAR 4
YEAR 5
EXPEDITIONER
Policy Review & Framework Design.
Pilot Programs in Rural Colleges (St Peace College).
LMS Integration & Digital Systems.
National Rollout & Accreditation.
NotebookLM

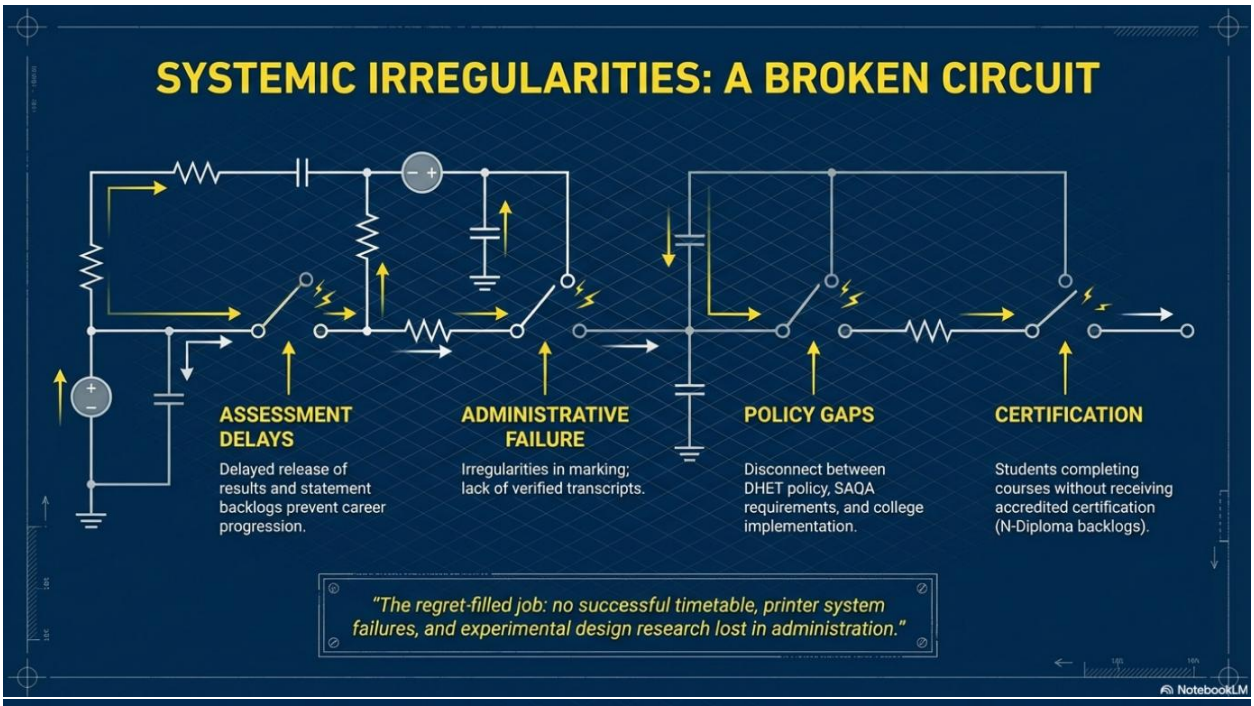

EXPECTED OUTCOMES & BENEFITS
CURRENT STATE
Backlogs
Missing Marks
Labor Disputes
Unemployable Graduates
FUTURE STATE
Timely Certification
Verified Results
Labor Stability
Skilled Energy Workforce
Stabilizing the Energy Sector & Empowering Rural Economies
NotebookLM

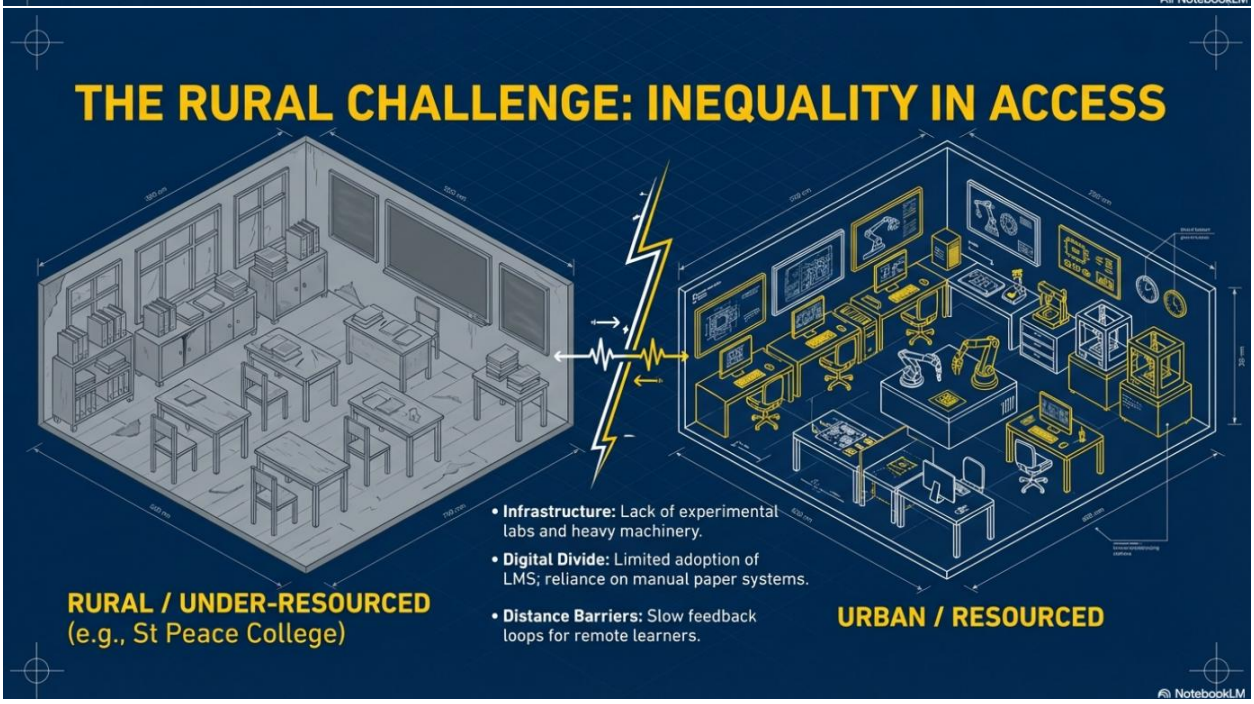

RESOURCE REQUIREMENTS & FUNDING
TRAINING
(Lecturer development)
20%
EQUIPMENT
(Simulators, Microgrid components)
45%
35%
DIGITAL INFRASTRUCTURE
(LMS, Cloud Storage)
FUNDING REQUEST
TARGET:
National Skills Fund (NSF) / NRF
BASE BUDGET UNIT:
40,000.00
PARTNERS:
DHET, SAQA, Private Energy Sector.
Securing sustainable resources and strategic partnerships for long-term impact.
NotebookLM

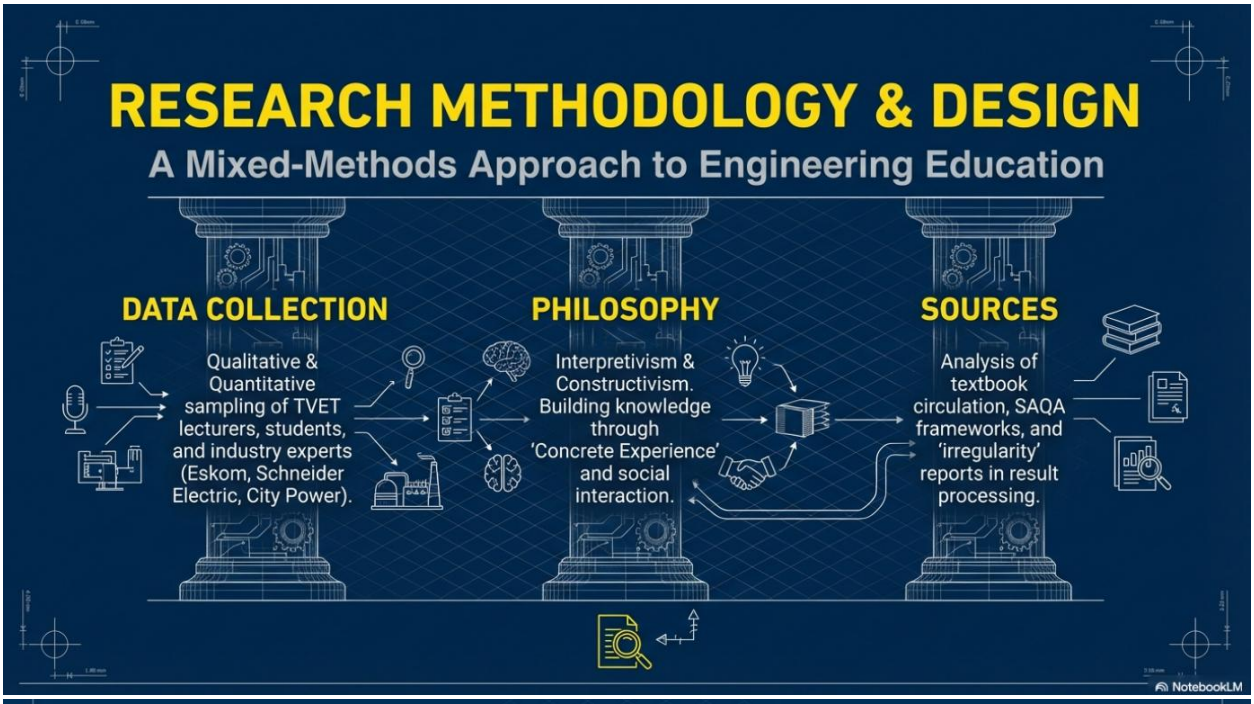
FROM IRREGULARITY TO INTEGRITY
Restoring confidence in South African Engineering Education.
salesforce
Tshingombe Tshitadi Fiston | Trailblazer | Researcher
NotebookLM

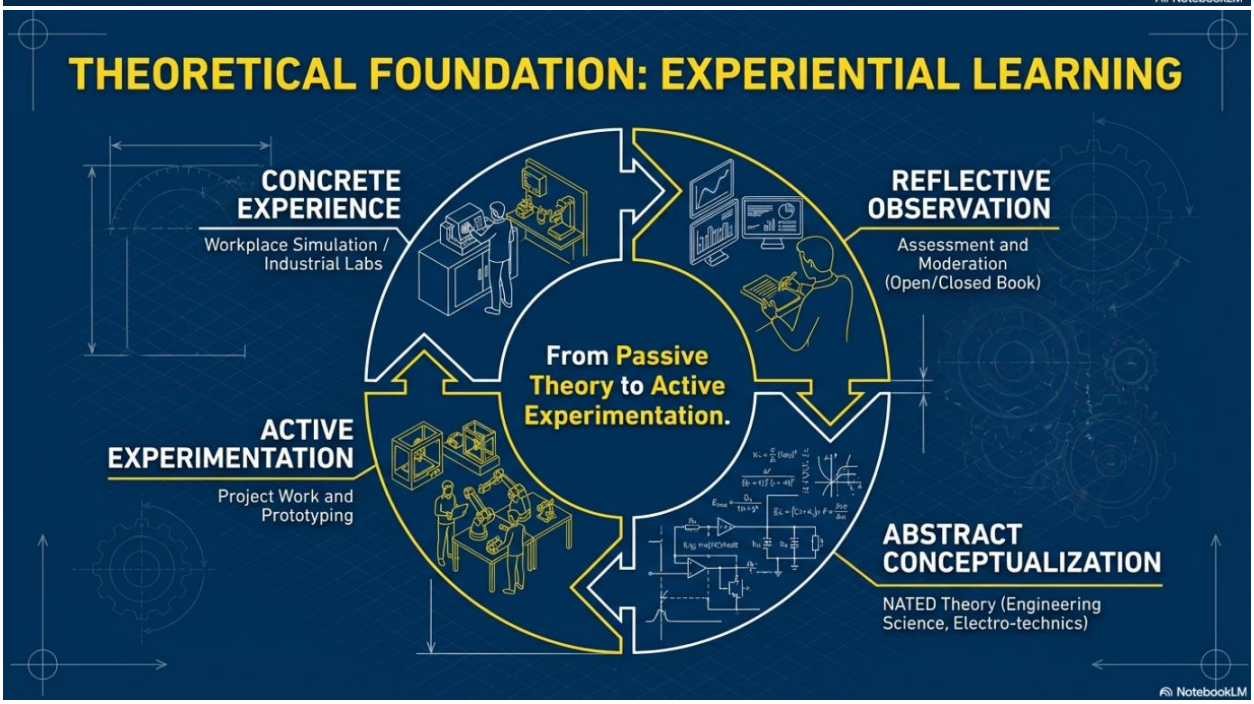
TRANSFORMING RURAL ENGINEERING EDUCATION IN SOUTH AFRICA
A Framework for Integrating NATED & NCV Qualifications for Industry Readiness
PRESENTER: Tshingombe Tshitadi Fiston
CREDENTIALS: Master Engineering Researcher | Electrical Engineering Systems
From Irregularity to Integrity in TVET Certification
NotebookLM

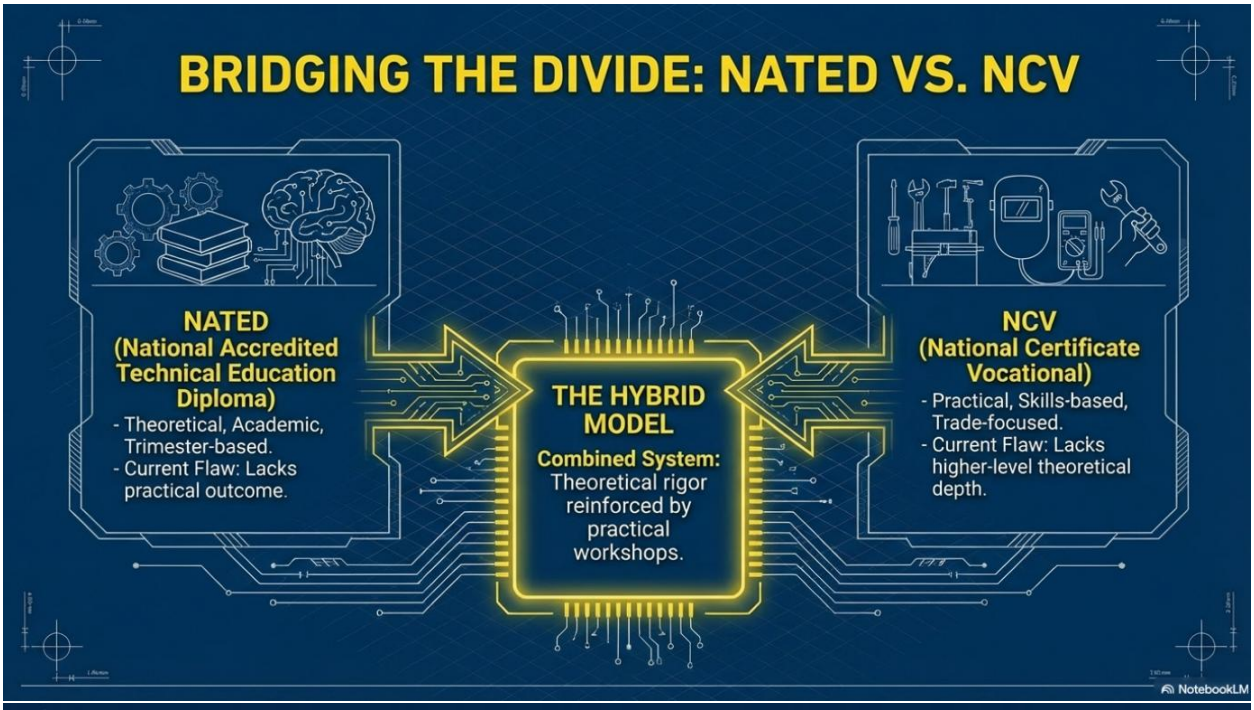

EXECUTIVE SUMMARY
THE DISCONNECT
The South African vocational sector (TVET) is currently fragmented. The separation of theoretical knowledge (NATED) and practical skills (NCV) has created a generation of graduates who are certified but unemployable. The system is defined by administrative "irregularities," delayed results, and a lack of accreditation in rural campuses like St Peace College.
THEORY (NATED)
PRACTICE (NCV)
DELAYED RESULTS
RURAL CAMPUS: NO ACCREDITATION
INTEGRATED FRAMEWORK
BRIDGING THE GAP
WORK-INTEGRATED LEARNING (WIL)
FRAGMENTATION
INTEGRATION
SOLVES BACKLOG CRISIS
LMS DIGITAL TRACKING
REAL-TIME RESULTS & INDUSTRY PLACEMENT
THE PROPOSAL
A new Integrated Framework merging academic rigor with Work-Integrated Learning (WIL). By utillzing digital Learning Management Systems (LMS) to track real-time results and mandating industry placement, we can solve the backlog crisis and bridge the skills gap.
INTEGRATED FRAMEWORK
ACADEMIC RIGOR
WIL
REAL-TIME RESULTS
INDUSTRY PLACEMENT
EMPLOYABLE GRADUATES
NotebookLM

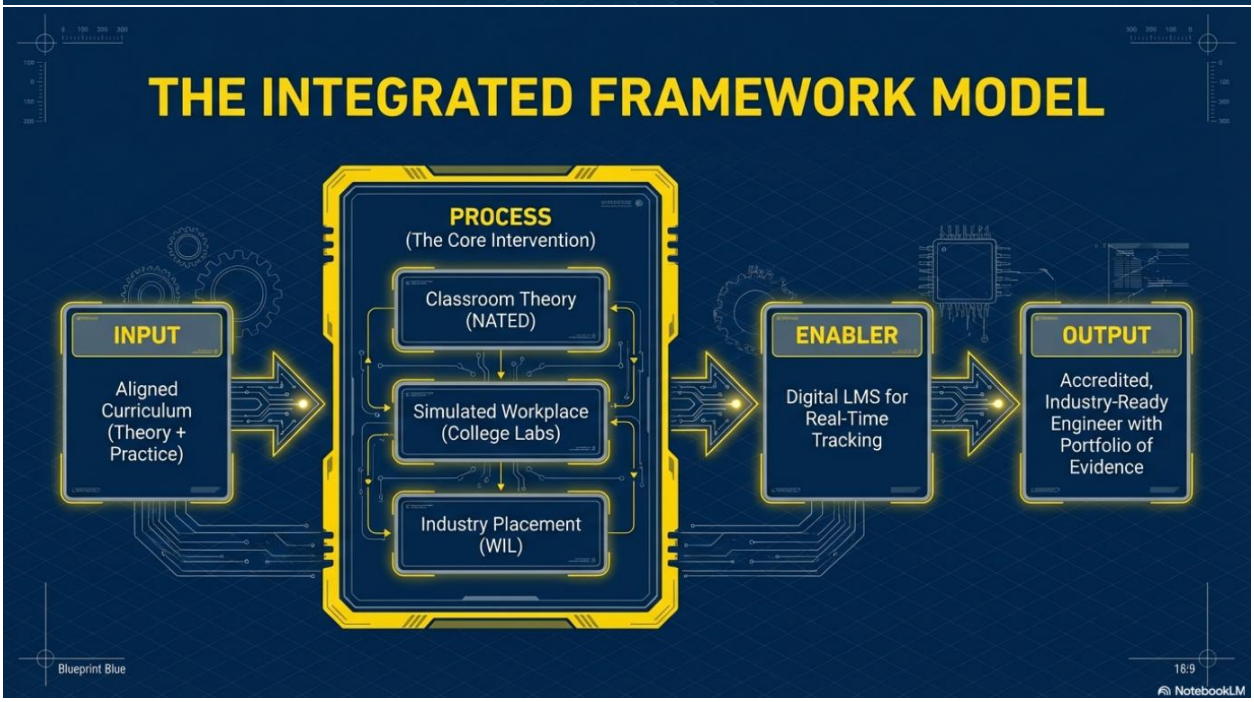

SYSTEMIC IRREGULARITIES: A BROKEN CIRCUIT
ASSESSMENT DELAYS
Delayed release of results and statement backlogs prevent career progression.
ADMINISTRATIVE FAILURE
Irregularities in marking; lack of verified transcripts.
POLICY GAPS
Disconnect between DHET policy, SAQA requirements, and college implementation.
CERTIFICATION
Students completing courses without receiving accredited certification (N-Diploma backlogs).
"The regret-filled job: no successful timetable, printer system failures, and experimental design research lost in administration."
NotebookLM

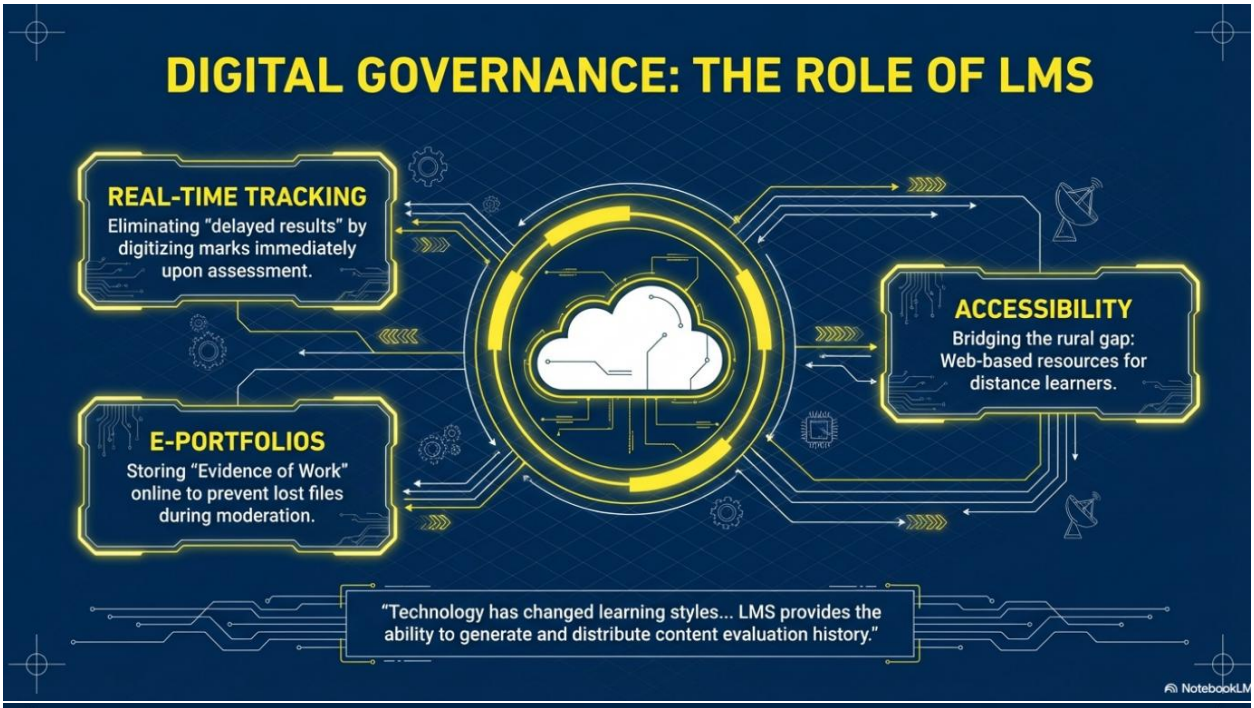

THE RURAL CHALLENGE: INEQUALITY IN ACCESS
• Infrastructure: Lack of experimental labs and heavy machinery.
• Digital Divide: Limited adoption of LMS; reliance on manual paper systems.
• Distance Barriers: Slow feedback loops for remote learners.
RURAL / UNDER-RESOURCED
(e.g., St Peace College)
URBAN / RESOURCED
NotebookLM

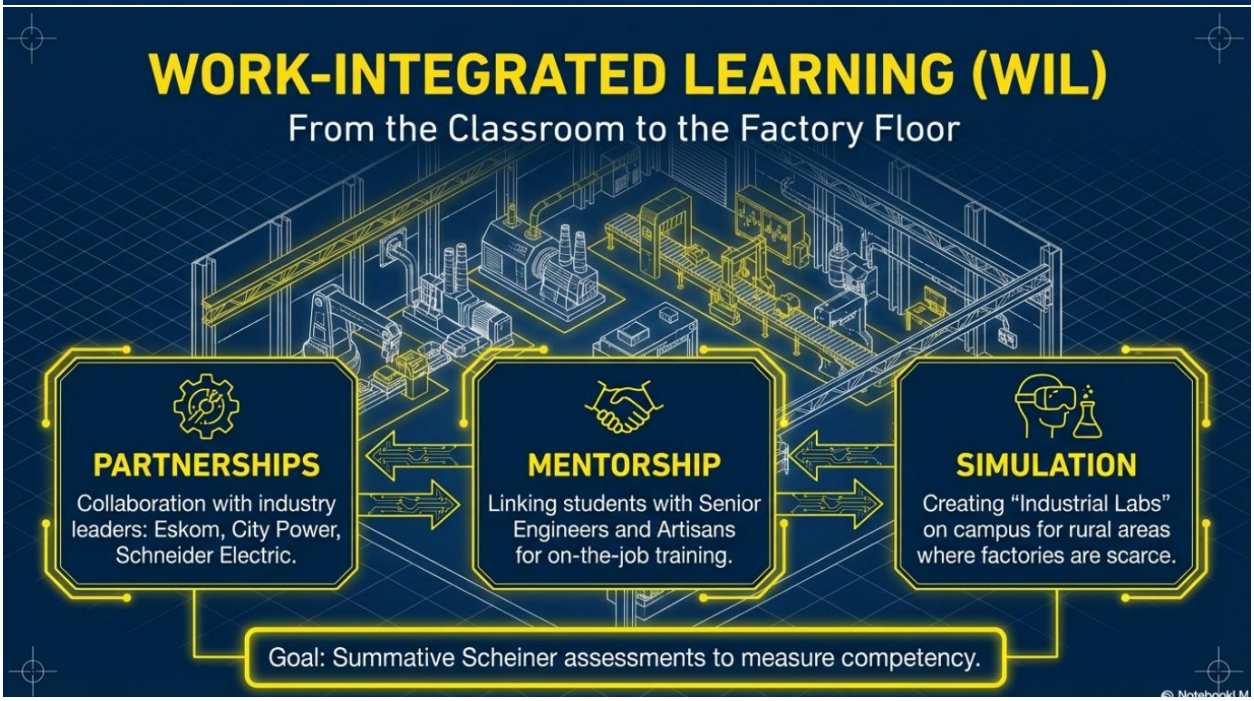

RESEARCH METHODOLOGY & DESIGN
A Mixed-Methods Approach to Engineering Education
DATA COLLECTION
Qualitative & Quantitative sampling of TVET lecturers, students, and industry experts (Eskom, Schneider Electric, City Power).
PHILOSOPHY
Interpretivism & Constructivism. Building knowledge through 'Concrete Experience' and social interaction.
SOURCES
Analysis of textbook circulation, SAQA frameworks, and 'irregularity' reports in result processing.
NotebookLM

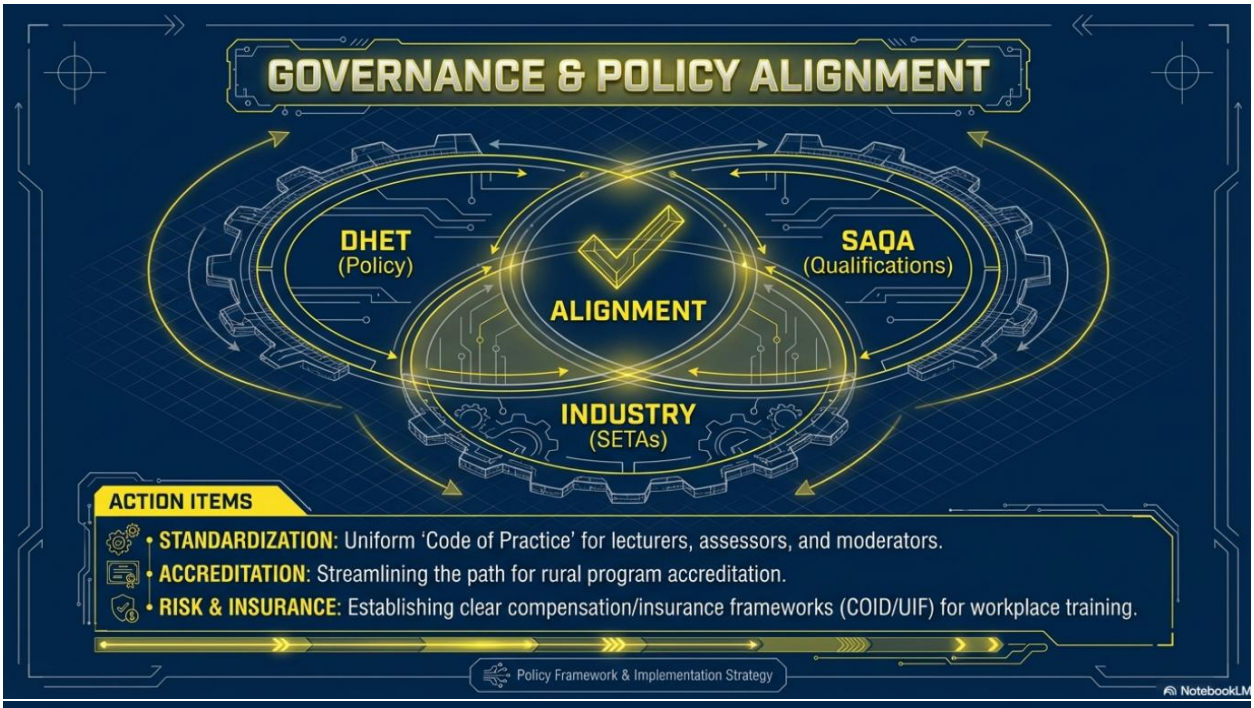

THEORETICAL FOUNDATION: EXPERIENTIAL LEARNING
CONCRETE EXPERIENCE
Workplace Simulation / Industrial Labs
REFLECTIVE OBSERVATION
Assessment and Moderation (Open/Closed Book)
From Passive Theory to Active Experimentation.
ACTIVE EXPERIMENTATION
Project Work and Prototyping
ABSTRACT CONCEPTUALIZATION
NATED Theory (Engineering Science, Electro-technics)
NotebookLM

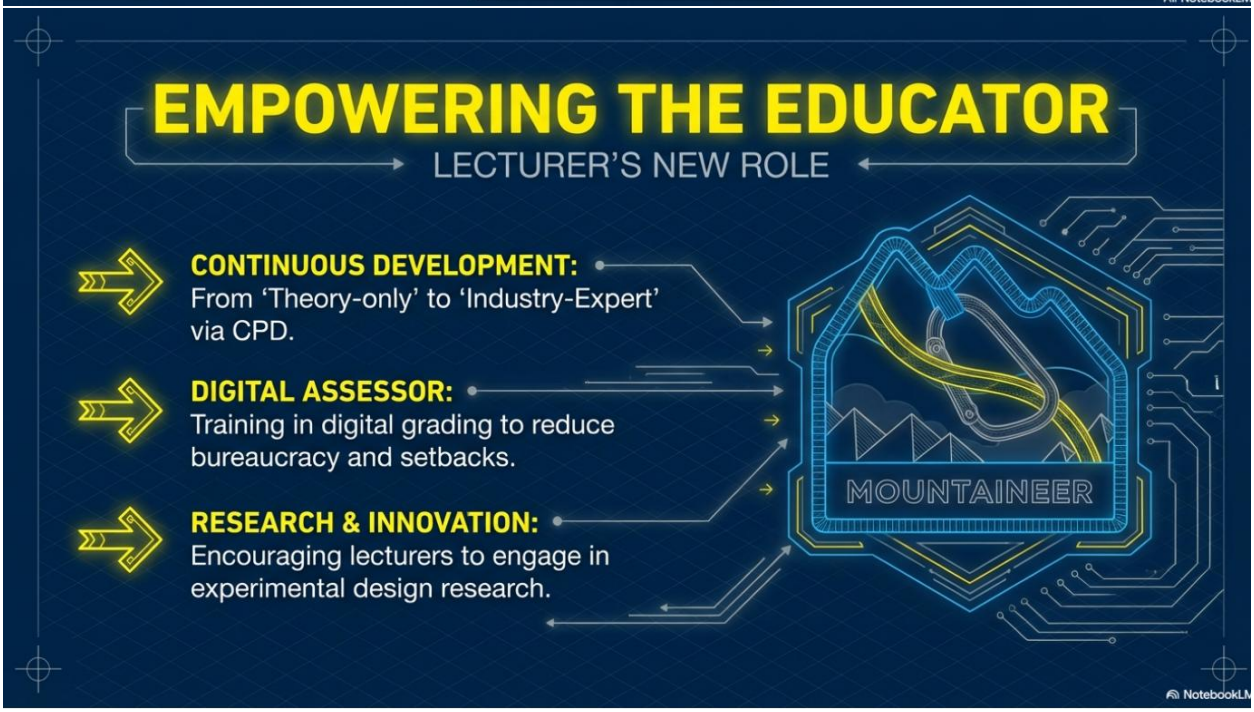

BRIDGING THE DIVIDE: NATED VS. NCV
NATED
(National Accredited Technical Education Diploma)
- Theoretical, Academic, Trimester-based.
- Current Flaw: Lacks practical outcome.
THE HYBRID MODEL
Combined System: Theoretical rigor reinforced by practical workshops.
NCV
(National Certificate Vocational)
- Practical, Skills-based, Trade-focused.
- Current Flaw: Lacks higher-level theoretical depth.
NotebookLM

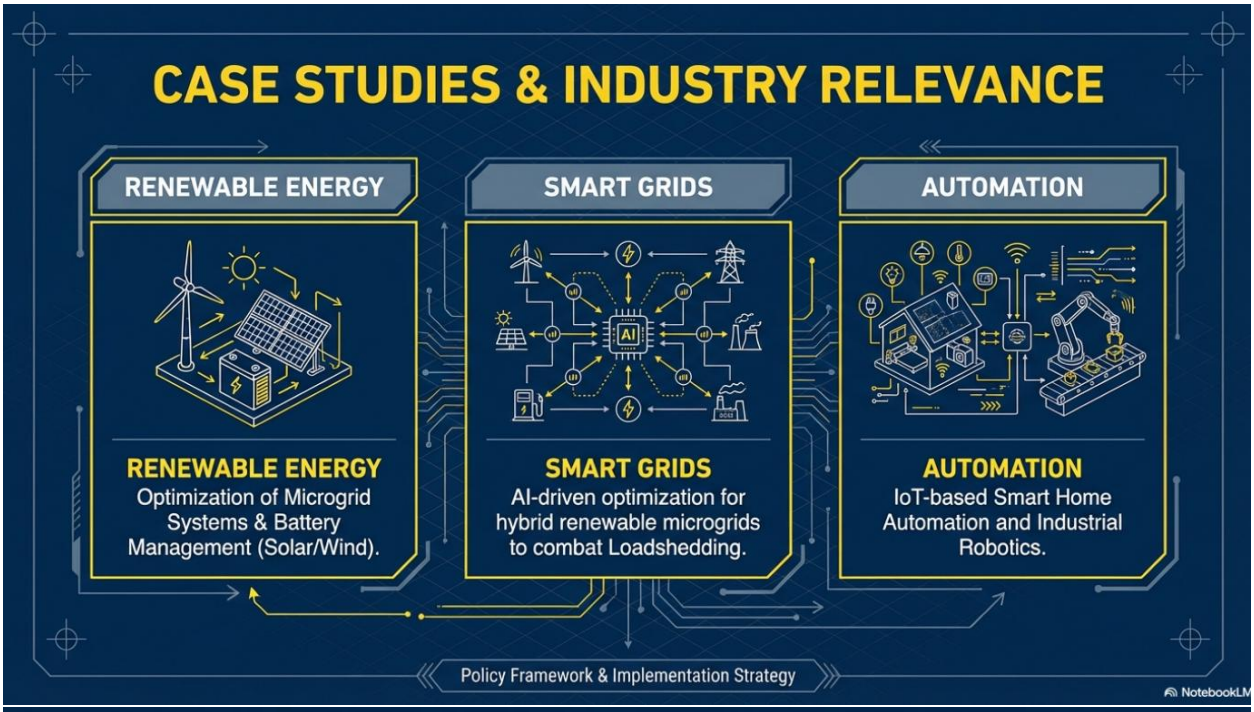

THE INTEGRATED FRAMEWORK MODEL
INPUT
Aligned Curriculum (Theory + Practice)
PROCESS
(The Core Intervention)
Classroom Theory (NATED)
Simulated Workplace (College Labs)
Industry Placement (WIL)
ENABLER
Digital LMS for Real-Time Tracking
OUTPUT
Accredited, Industry-Ready Engineer with Portfolio of Evidence
Blueprint Blue
18:9
NotebookLM

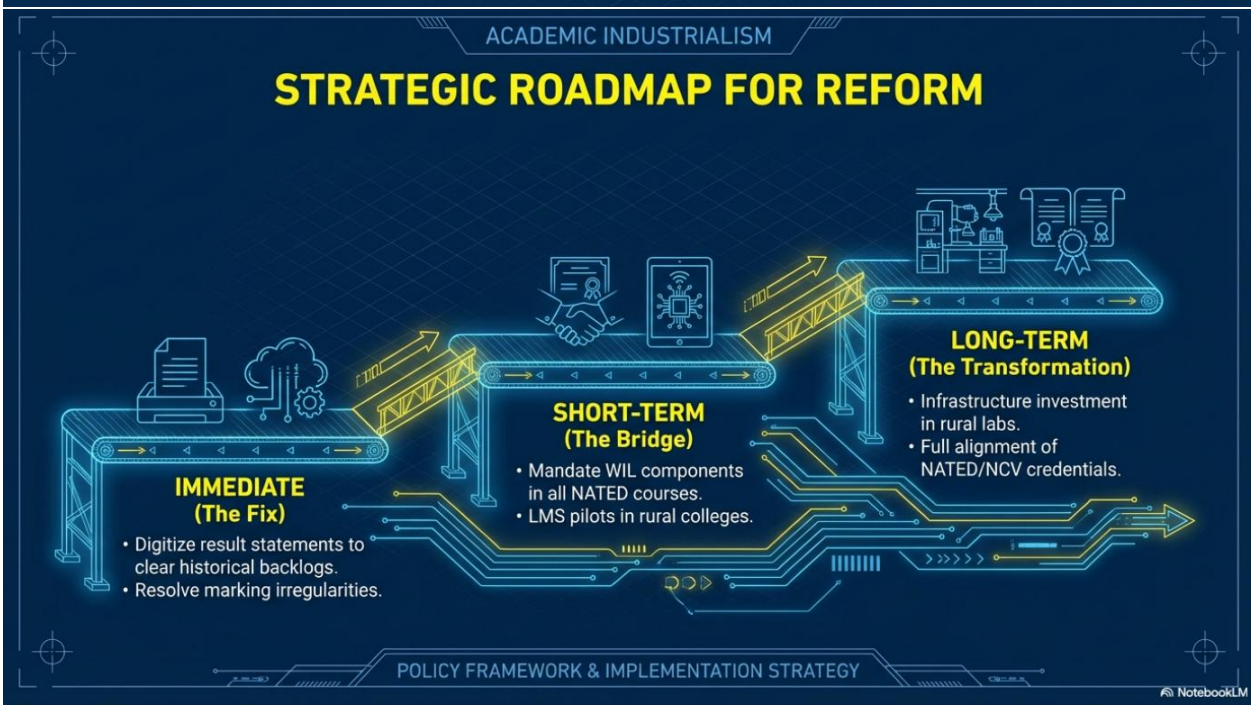

DIGITAL GOVERNANCE: THE ROLE OF LMS
REAL-TIME TRACKING
Eliminating "delayed results" by digitizing marks immediately upon assessment.
ACCESSIBILITY
Bridging the rural gap: Web-based resources for distance learners.
E-PORTFOLIOS
Storing "Evidence of Work" online to prevent lost files during moderation.
"Technology has changed learning styles... LMS provides the ability to generate and distribute content evaluation history."
NotebookLM

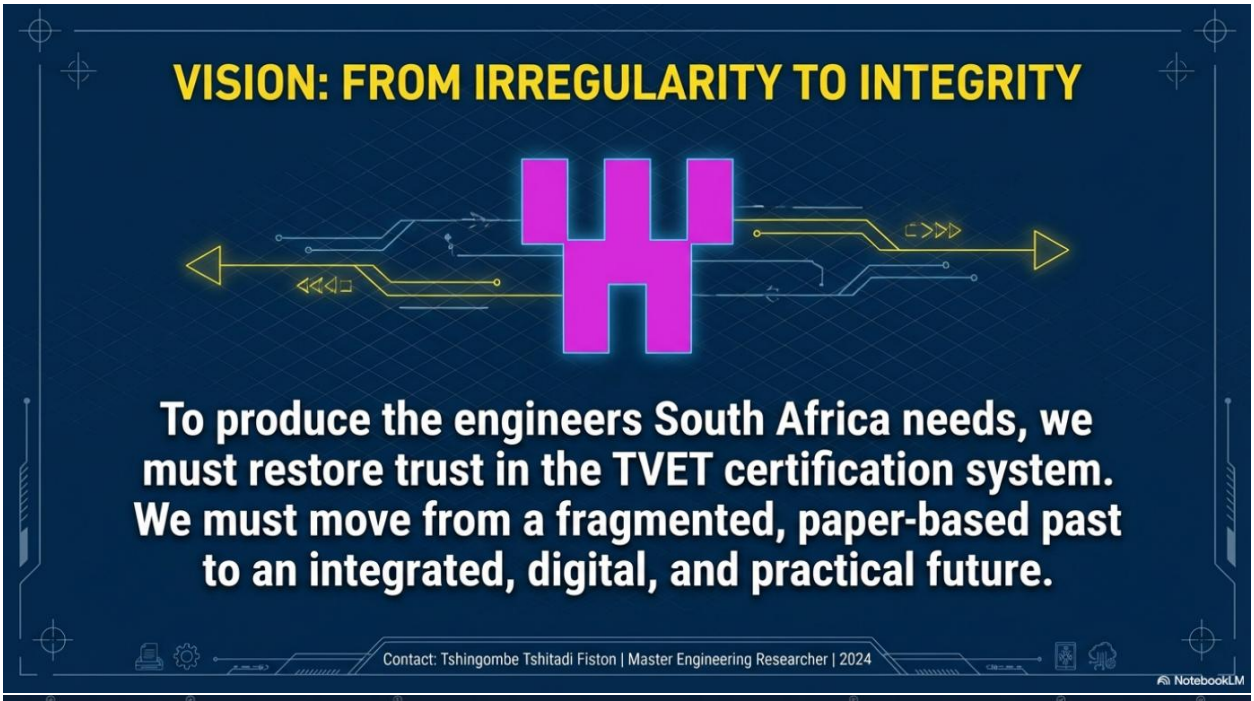

WORK-INTEGRATED LEARNING (WIL)
From the Classroom to the Factory Floor
PARTNERSHIPS
Collaboration with industry leaders: Eskom, City Power, Schneider Electric.
MENTORSHIP
Linking students with Senior Engineers and Artisans for on-the-job training.
SIMULATION
Creating "Industrial Labs" on campus for rural areas where factories are scarce.
Goal: Summative Scheiner assessments to measure competency.

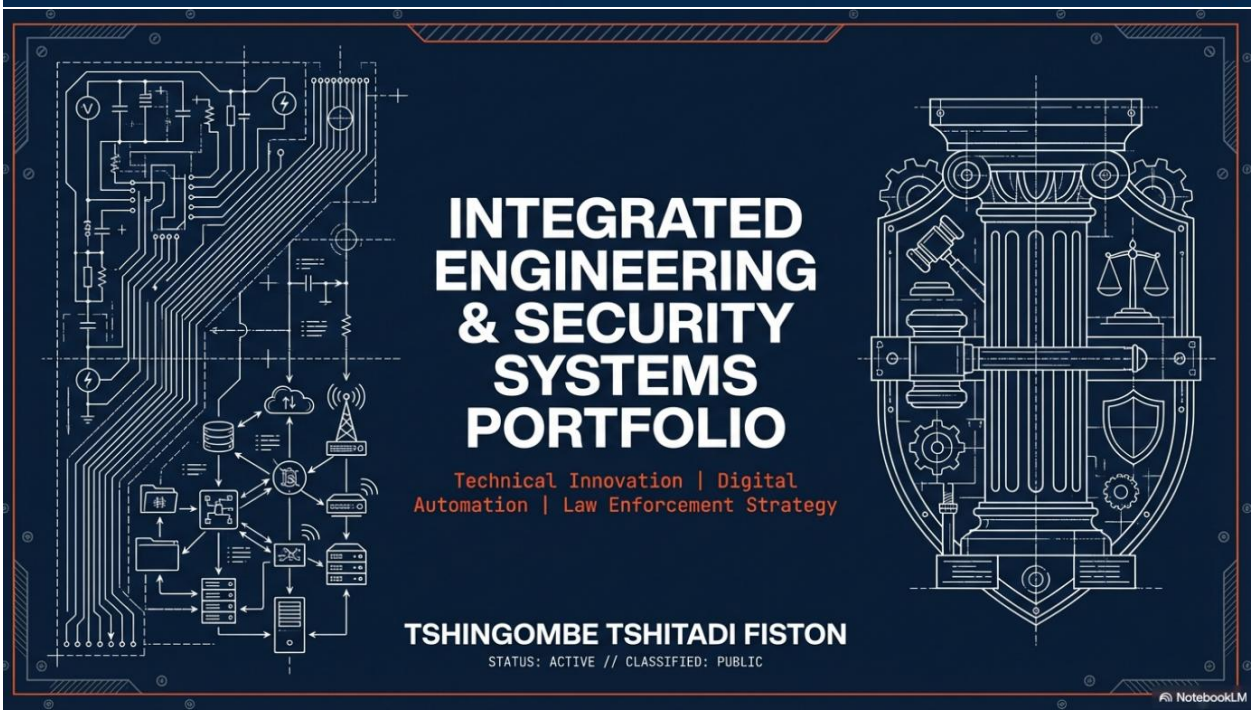

GOVERNANCE & POLICY ALIGNMENT
DHET
(Policy)
SAQA
(Qualifications)
ALIGNMENT
INDUSTRY
(SETAs)
ACTION ITEMS
STANDARDIZATION: Uniform 'Code of Practice' for lecturers, assessors, and moderators.
ACCREDITATION: Streamlining the path for rural program accreditation.
RISK & INSURANCE: Establishing clear compensation/insurance frameworks (COID/UIF) for workplace training.
Policy Framework & Implementation Strategy
NotebookLM

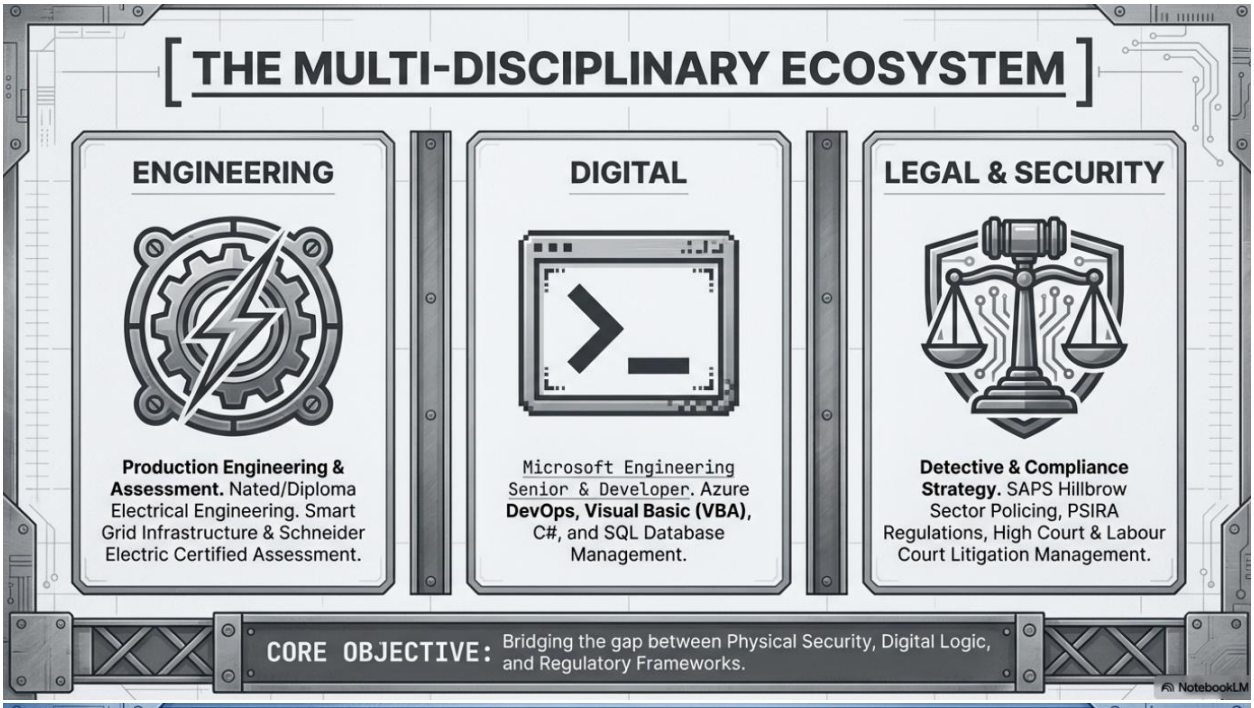

EMPOWERING THE EDUCATOR
LECTURER'S NEW ROLE
CONTINUOUS DEVELOPMENT:
From 'Theory-only' to 'Industry-Expert' via CPD.
DIGITAL ASSESSOR:
Training in digital grading to reduce bureaucracy and setbacks.
RESEARCH & INNOVATION:
Encouraging lecturers to engage in experimental design research.
MOUNTAINEER
NotebookLM

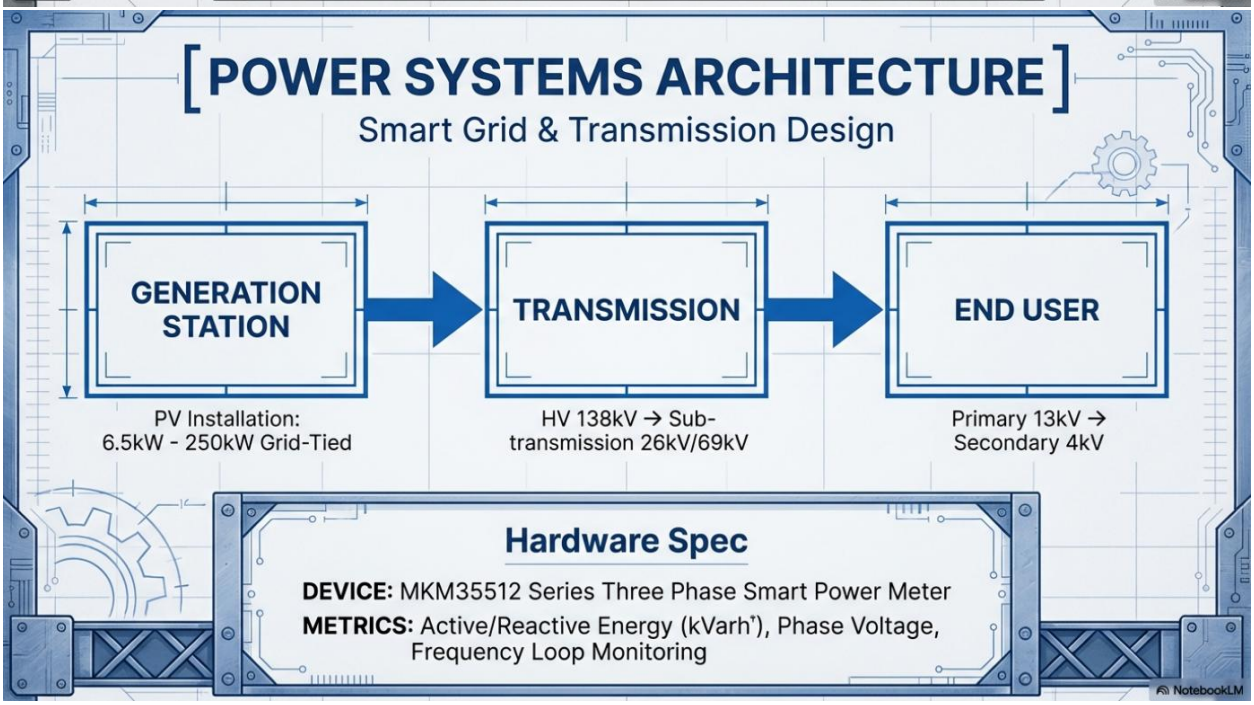

CASE STUDIES & INDUSTRY RELEVANCE
RENEWABLE ENERGY
SMART GRIDS
AUTOMATION
AI
RENEWABLE ENERGY
Optimization of Microgrid Systems & Battery Management (Solar/Wind).
SMART GRIDS
AI-driven optimization for hybrid renewable microgrids to combat Loadshedding.
AUTOMATION
IoT-based Smart Home Automation and Industrial Robotics.
Policy Framework & Implementation Strategy
NotebookLM

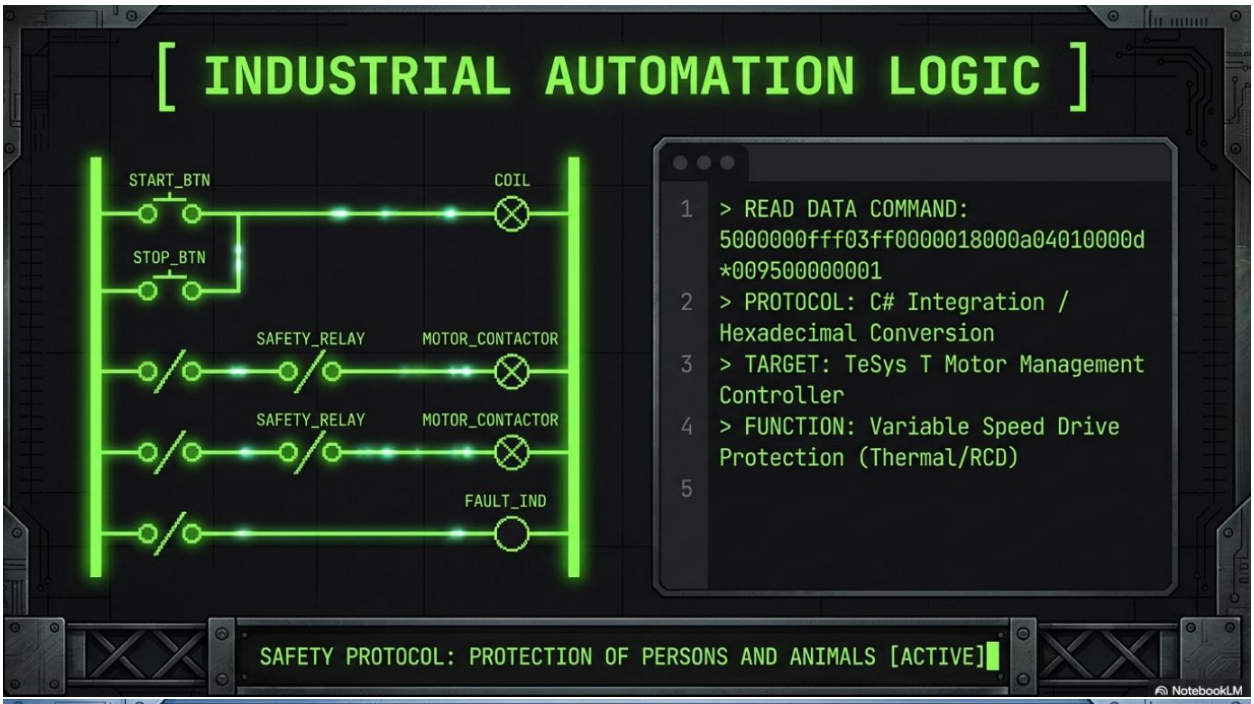

ACADEMIC INDUSTRIALISM
STRATEGIC ROADMAP FOR REFORM
IMMEDIATE
(The Fix)
• Digitize result statements to clear historical backlogs.
• Resolve marking irregularities.
SHORT-TERM
(The Bridge)
• Mandate WIL components in all NATED courses.
• LMS pilots in rural colleges.
LONG-TERM
(The Transformation)
• Infrastructure investment in rural labs.
• Full alignment of NATED/NCV credentials.
POLICY FRAMEWORK & IMPLEMENTATION STRATEGY
NotebookLM

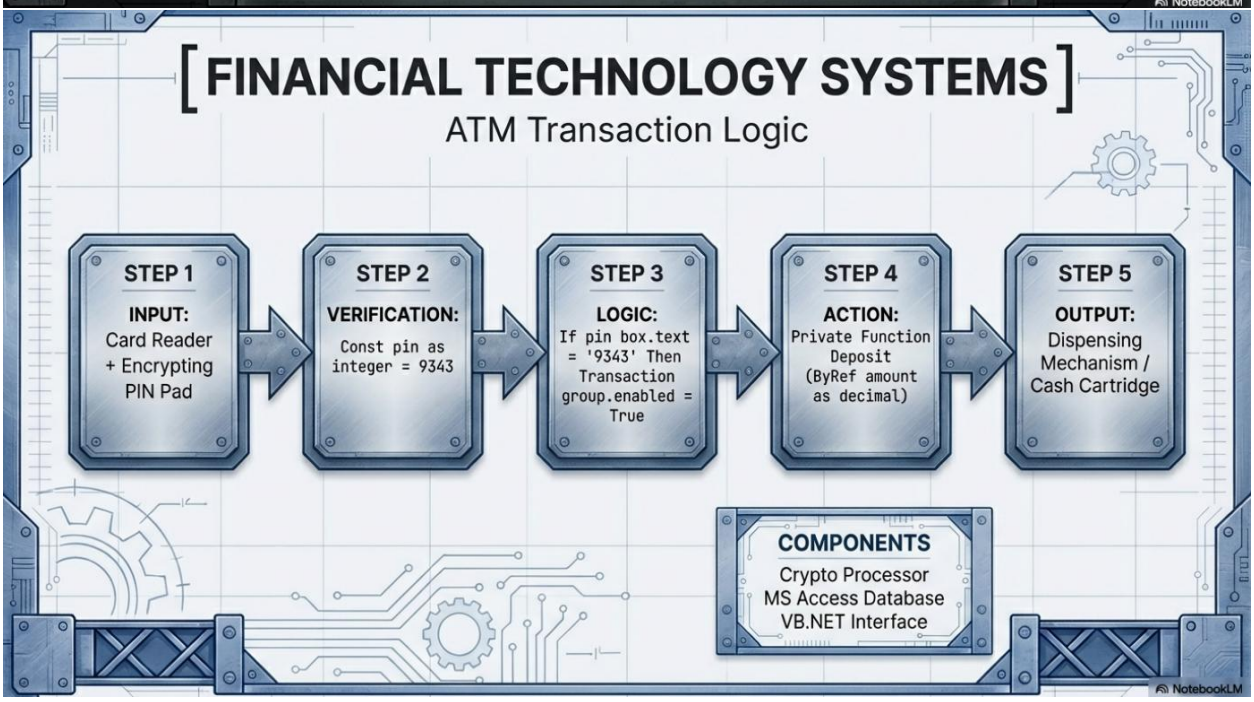

VISION: FROM IRREGULARITY TO INTEGRITY
To produce the engineers South Africa needs, we must restore trust in the TVET certification system. We must move from a fragmented, paper-based past to an integrated, digital, and practical future.
Contact: Tshingombe Tshitadi Fiston | Master Engineering Researcher | 2024
NotebookLM

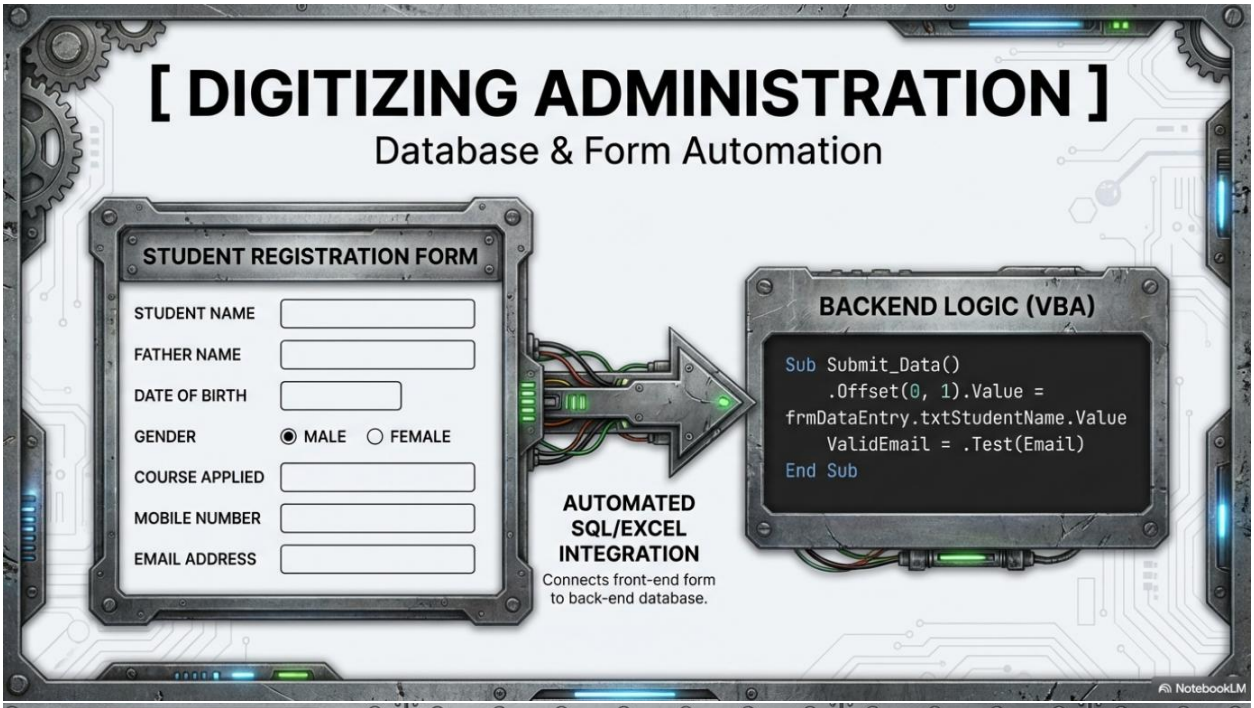

INTEGRATED ENGINEERING & SECURITY SYSTEMS PORTFOLIO
Technical Innovation | Digital Automation | Law Enforcement Strategy
TSHINGOMBE TSHITADI FISTON
STATUS: ACTIVE // CLASSIFIED: PUBLIC
NotebookLM

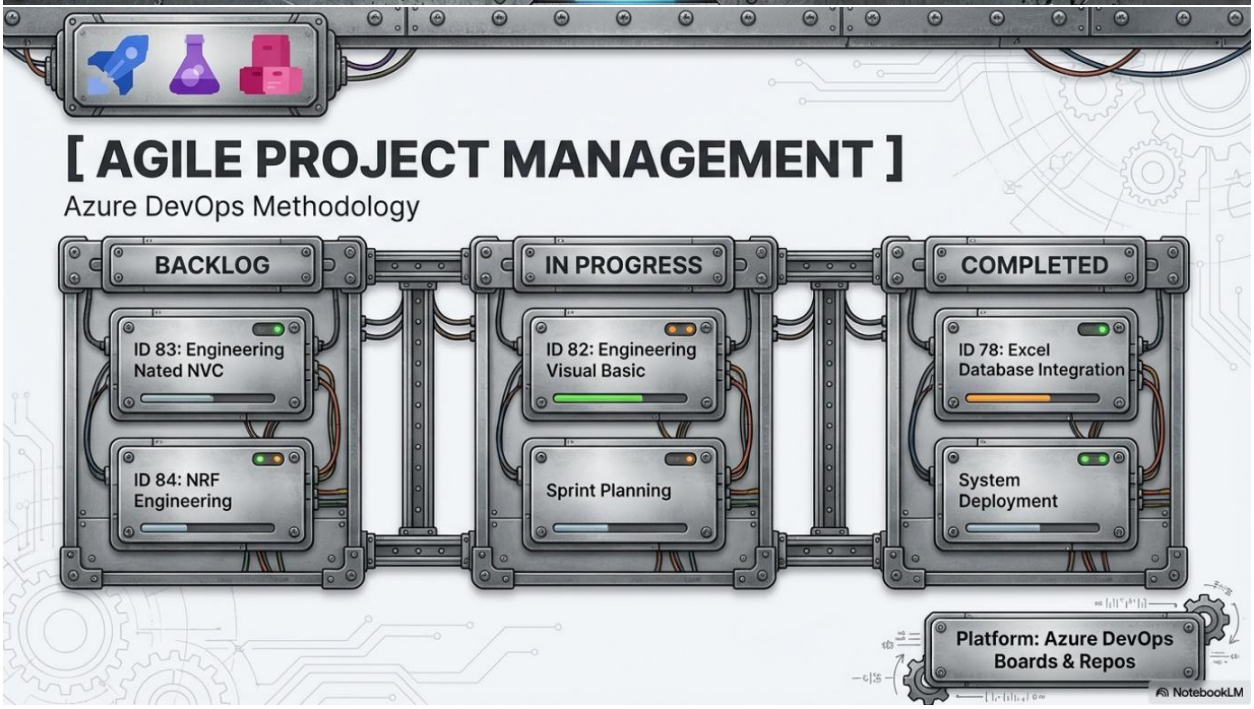

THE MULTI-DISCIPLINARY ECOSYSTEM
ENGINEERING
Production Engineering & Assessment. Nated/Diploma Electrical Engineering. Smart Grid Infrastructure & Schneider Electric Certified Assessment.
DIGITAL
Microsoft Engineering Senior & Developer. Azure DevOps, Visual Basic (VBA), C#, and SQL Database Management.
LEGAL & SECURITY
Detective & Compliance Strategy. SAPS Hillbrow Sector Policing, PSIRA Regulations, High Court & Labour Court Litigation Management.
CORE OBJECTIVE: Bridging the gap between Physical Security, Digital Logic, and Regulatory Frameworks.
NotebookLM


POWER SYSTEMS ARCHITECTURE
Smart Grid & Transmission Design
GENERATION STATION
TRANSMISSION
END USER
PV Installation: 6.5kW - 250kW Grid-Tied
HV 138kV → Sub-transmission 26kV/69kV
Primary 13kV → Secondary 4kV
Hardware Spec
DEVICE: MKM35512 Series Three Phase Smart Power Meter
METRICS: Active/Reactive Energy (kVarh), Phase Voltage, Frequency Loop Monitoring
NotebookLM


[INDUSTRIAL AUTOMATION LOGIC]
START_BTN
COIL
STOP_BTN
SAFETY_RELAY
MOTOR_CONTACTOR
SAFETY_RELAY
MOTOR_CONTACTOR
FAULT_IND
1 > READ DATA COMMAND: 5000000fff03ff0000018000a04010000d *009500000001
2 > PROTOCOL: C# Integration / Hexadecimal Conversion
3 > TARGET: TeSys T Motor Management Controller
4 > FUNCTION: Variable Speed Drive Protection (Thermal/RCD)
5
SAFETY PROTOCOL: PROTECTION OF PERSONS AND ANIMALS [ACTIVE]
NotebookLM

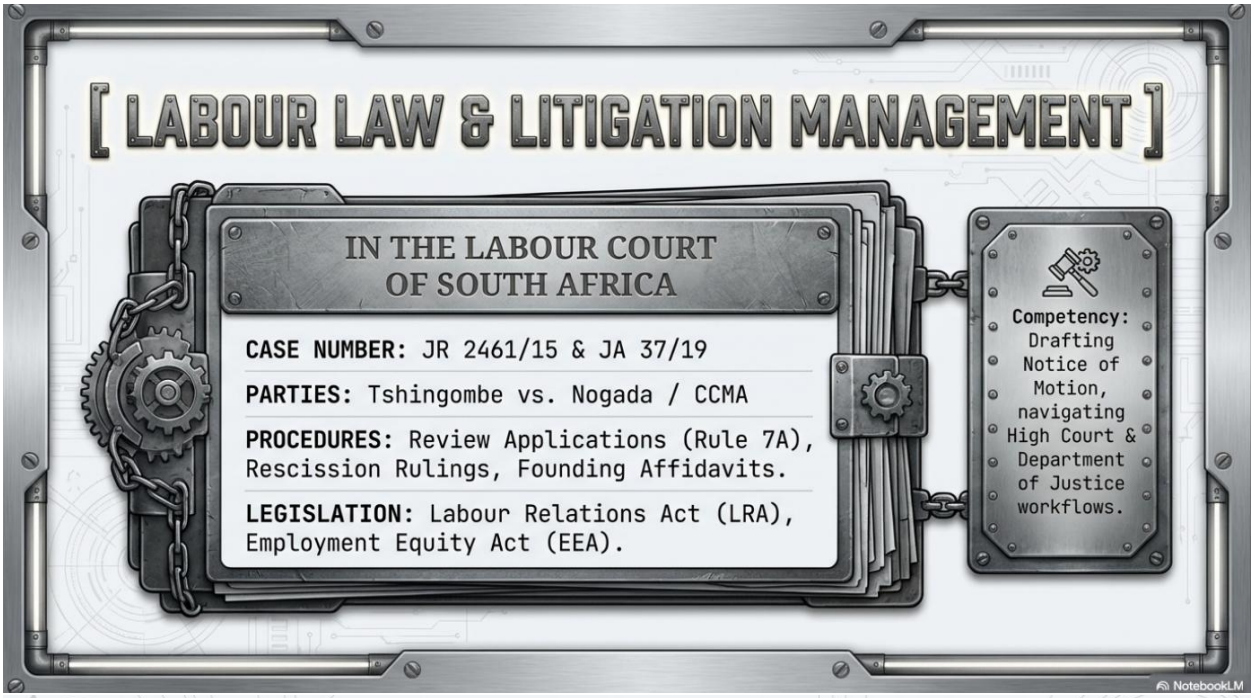

[FINANCIAL TECHNOLOGY SYSTEMS]
ATM Transaction Logic
STEP 1
INPUT:
Card Reader + Encrypting PIN Pad
STEP 2
VERIFICATION:
Const pin as integer = 9343
STEP 3
LOGIC:
If pin box.text = '9343' Then Transaction group.enabled = True
STEP 4
ACTION:
Private Function Deposit (ByRef amount as decimal)
STEP 5
OUTPUT:
Dispensing Mechanism / Cash Cartridge
COMPONENTS
Crypto Processor
MS Access Database
VB.NET Interface
NotebookLM

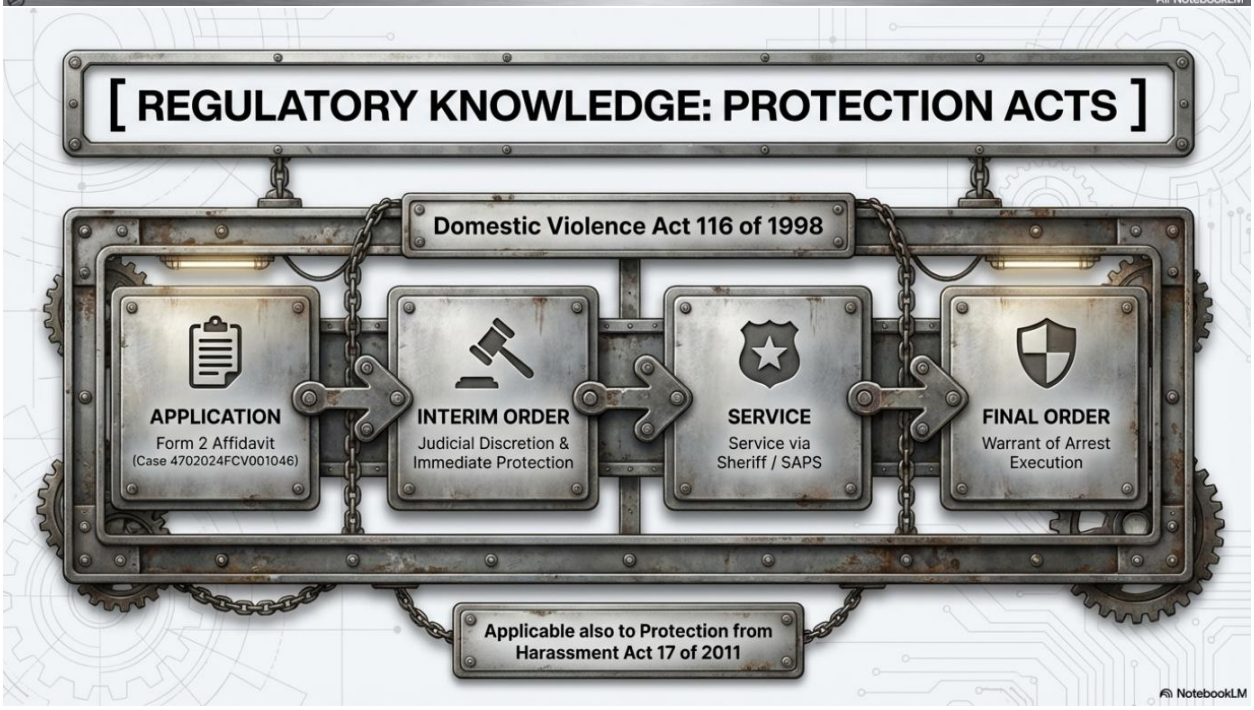

[DIGITIZING ADMINISTRATION]
Database & Form Automation
STUDENT REGISTRATION FORM
STUDENT NAME
FATHER NAME
DATE OF BIRTH
GENDER
MALE
FEMALE
COURSE APPLIED
MOBILE NUMBER
EMAIL ADDRESS
AUTOMATED SQL/EXCEL INTEGRATION
Connects front-end form to back-end database.
BACKEND LOGIC (VBA)
Sub Submit_Data()
.Offset(0, 1).Value =
frmDataEntry.txtStudentName.Value
ValidEmail = .Test(Email)
End Sub
NotebookLM


[AGILE PROJECT MANAGEMENT]
Azure DevOps Methodology
BACKLOG
ID 83: Engineering Nated NVC
ID 84: NRF Engineering
IN PROGRESS
ID 82: Engineering Visual Basic
Sprint Planning
COMPLETED
ID 78: Excel Database Integration
System Deployment
Platform: Azure DevOps Boards & Repos
NotebookLM

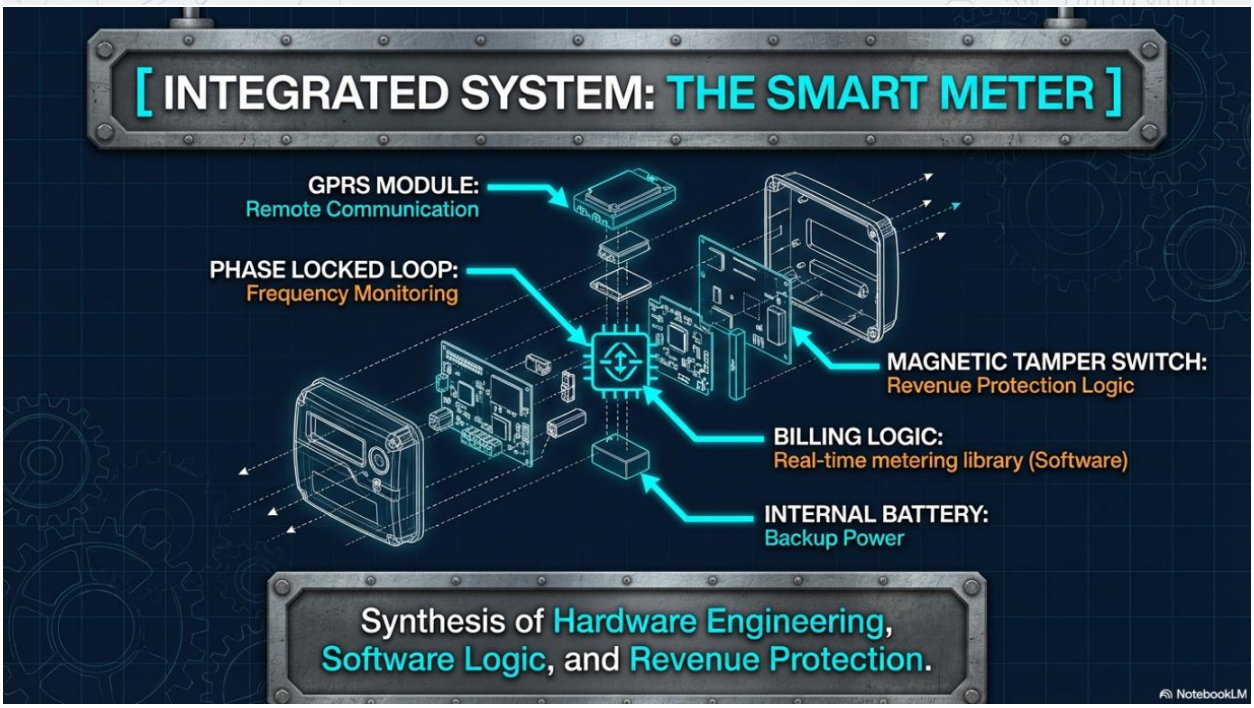
[CRIME MANAGEMENT INFORMATION SYSTEMS (MIS)]
Samara City Main Police Station / Hillbrow Precinct
INCIDENT LOG:
4702
PATROL ALLOCATION:
SECTOR 4
STATUS:
COMPUTERIZED
RECORD SYSTEM
ONLINE
Crime Dashboard
HOTSPOTS
"Transitioning from manual paper files to automated, predictive crime control."
NotebookLM

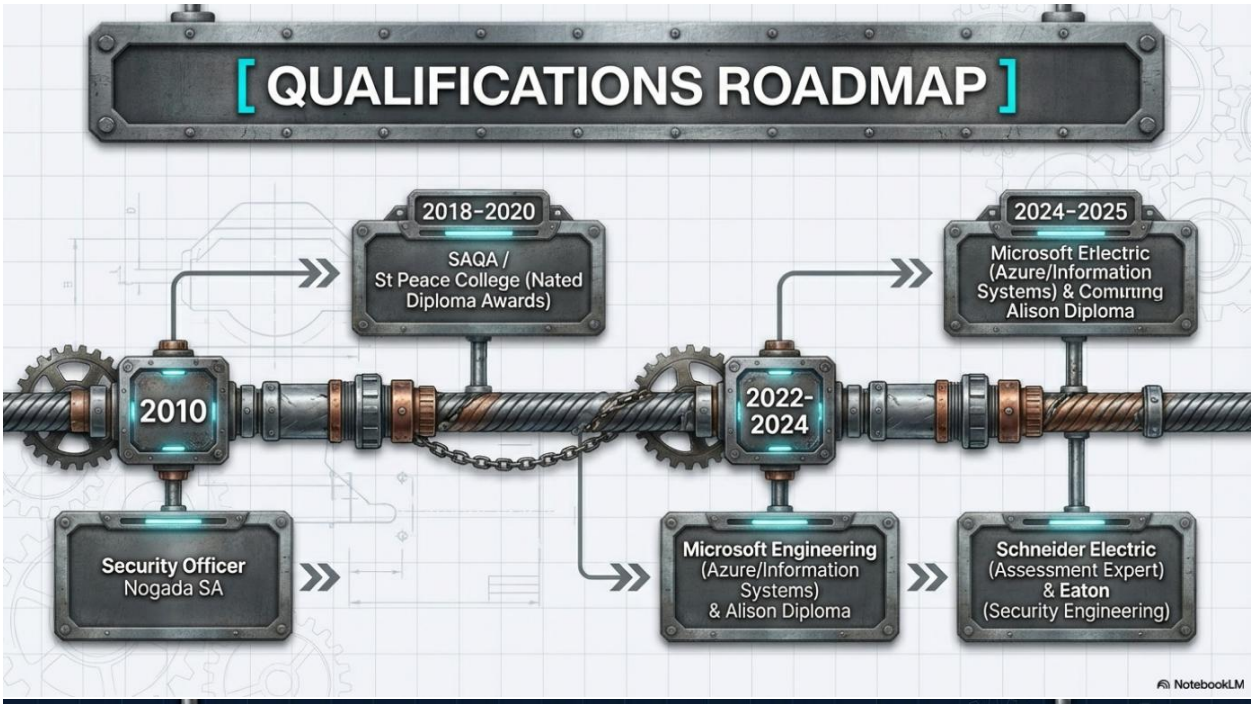
[APPLIED POLICING STRATEGY]
Operational Competencies
CRIME PREVENTION
Applications in Crime Resolution
Active Prevention Strategies
TRAFFIC MANAGEMENT
Incident Collision Scenarios
Operational Performance
CONFIRMED
INVESTIGATION
Principles of Police Investigation
Crime Scene Management
COMMUNITY
Community Policing
Communication Skills
16:9
NotebookLM


[LABOUR LAW & LITIGATION MANAGEMENT]
IN THE LABOUR COURT OF SOUTH AFRICA
CASE NUMBER: JR 2461/15 & JA 37/19
PARTIES: Tshingombe vs. Nogada / CCMA
PROCEDURES: Review Applications (Rule 7A), Rescission Rulings, Founding Affidavits.
LEGISLATION: Labour Relations Act (LRA), Employment Equity Act (EEA).
Competency: Drafting Notice of Motion, navigating High Court & Department of Justice workflows.
NotebookLM

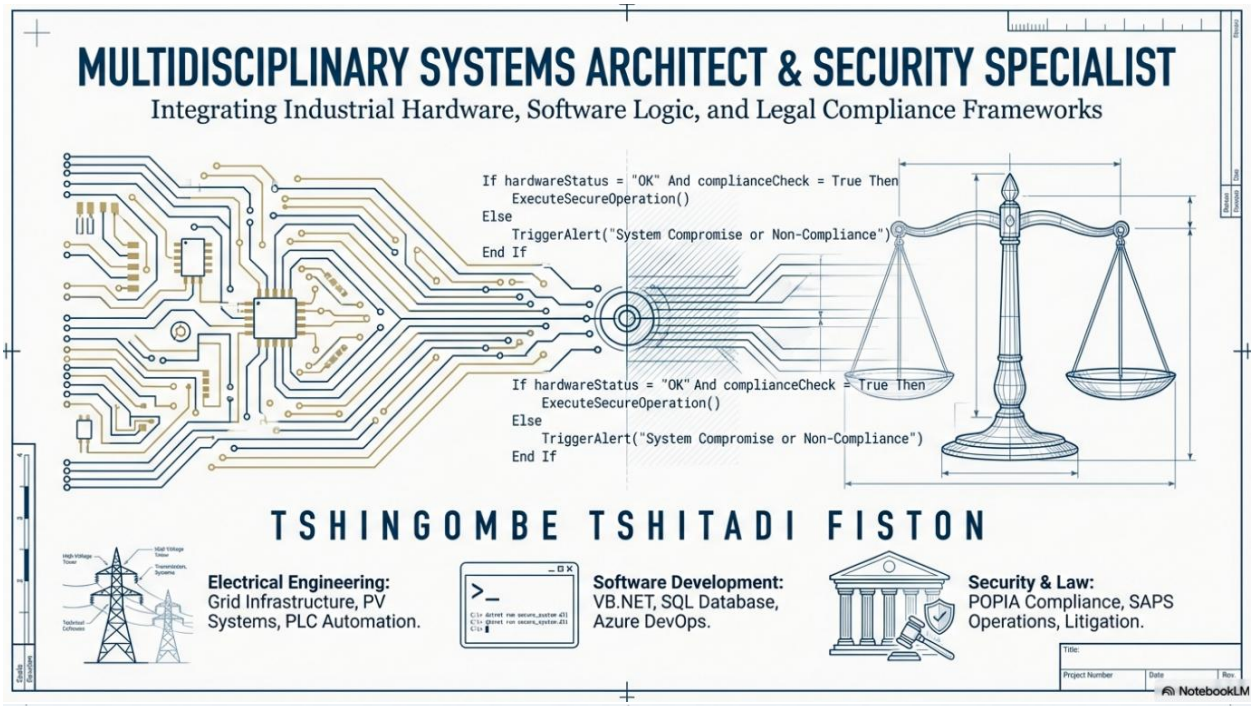

[REGULATORY KNOWLEDGE: PROTECTION ACTS]
Domestic Violence Act 116 of 1998
APPLICATION
Form 2 Affidavit
(Case 4702024FCV001046)
INTERIM ORDER
Judicial Discretion & Immediate Protection
SERVICE
Service via Sheriff / SAPS
FINAL ORDER
Warrant of Arrest Execution
Applicable also to Protection from Harassment Act 17 of 2011
NotebookLM

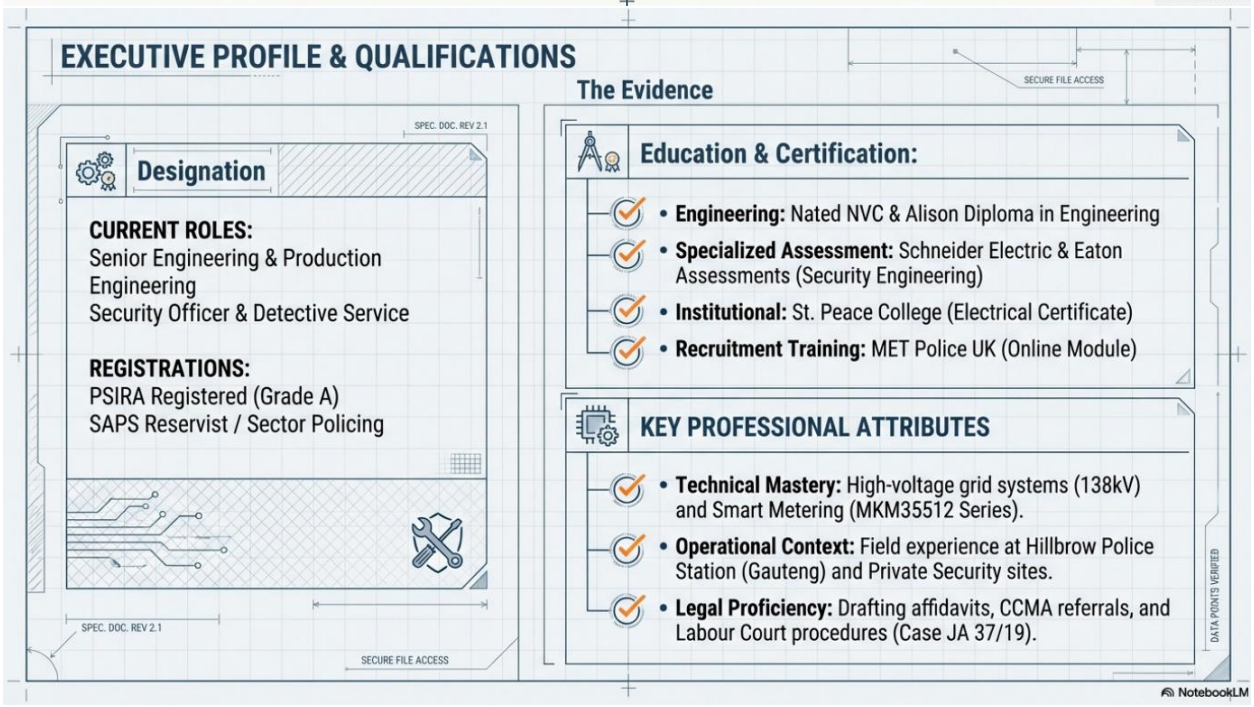
[PRIVATE SECURITY INDUSTRY REGULATION]
PSIRA REGISTERED
Private Security Industry Regulatory Authority. Compliance & Standing.
OPERATIONAL EXPERIENCE
Nogada SA / Section One. Roles: Security Officer, Physical Security (City Power/Eskom).
SASSETA ACCREDITED
Skills Development & Assessment. National Council Bargaining.
NotebookLM

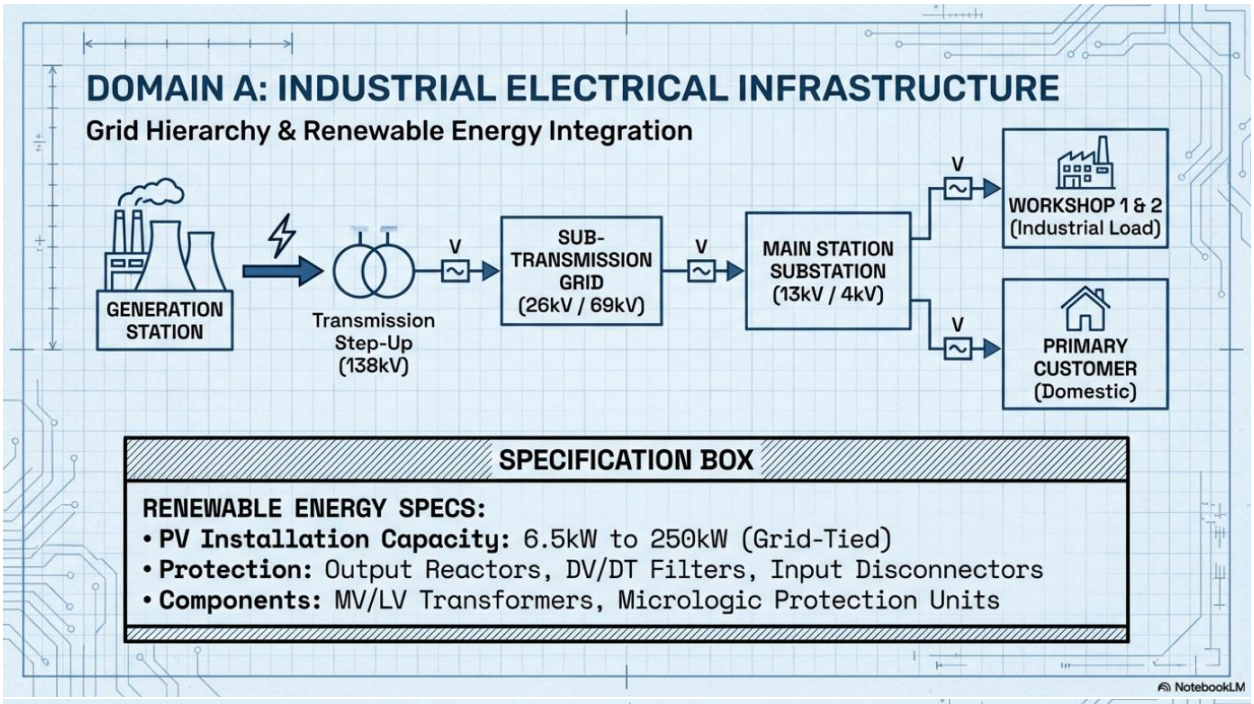

[INTEGRATED SYSTEM: THE SMART METER]
GPRS MODULE:
Remote Communication
PHASE LOCKED LOOP:
Frequency Monitoring
MAGNETIC TAMPER SWITCH:
Revenue Protection Logic
BILLING LOGIC:
Real-time metering library (Software)
INTERNAL BATTERY:
Backup Power
Synthesis of Hardware Engineering, Software Logic, and Revenue Protection.
NotebookLM

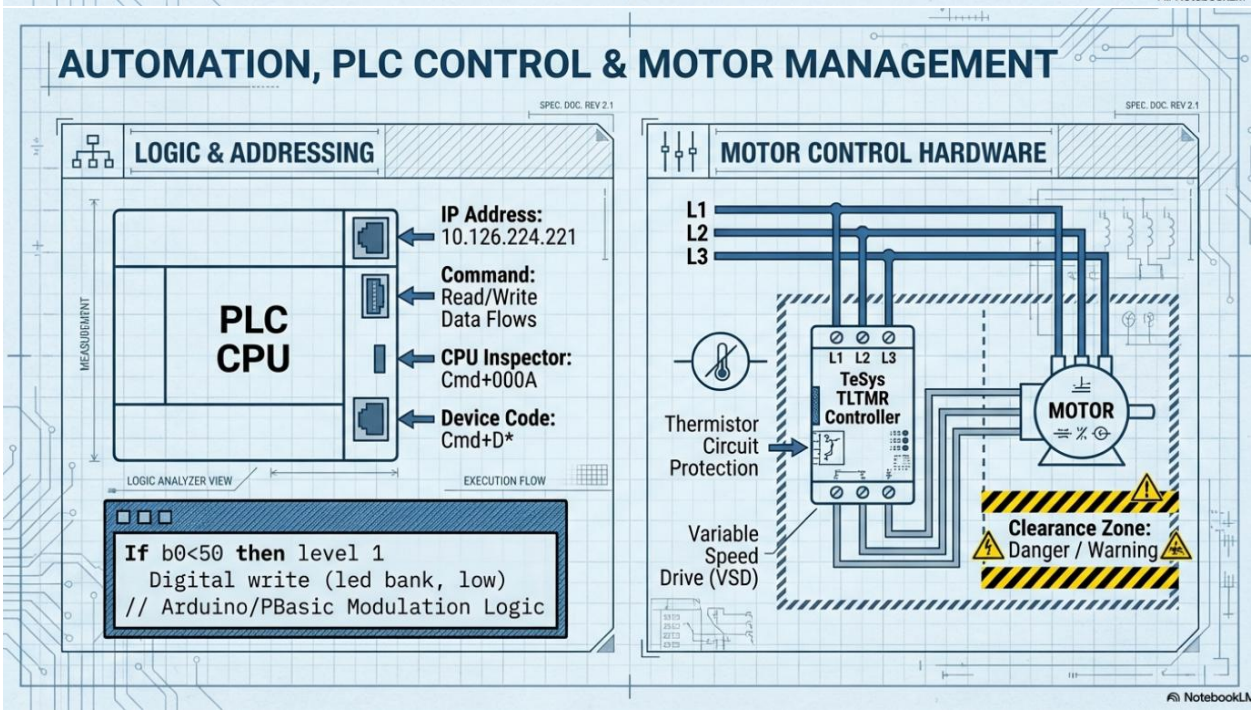

[QUALIFICATIONS ROADMAP]
2010
Security Officer
Nogada SA
2018-2020
SAQA /
St Peace College (Nated
Diploma Awards)
2022-
2024
Microsoft Engineering
(Azure/Information
Systems)
& Alison Diploma
2024-2025
Microsoft Erlectric
(Azure/Information
Systems) & Coming
Alison Diploma
Schneider Electric
(Assessment Expert)
& Eaton
(Security Engineering)
NotebookLM

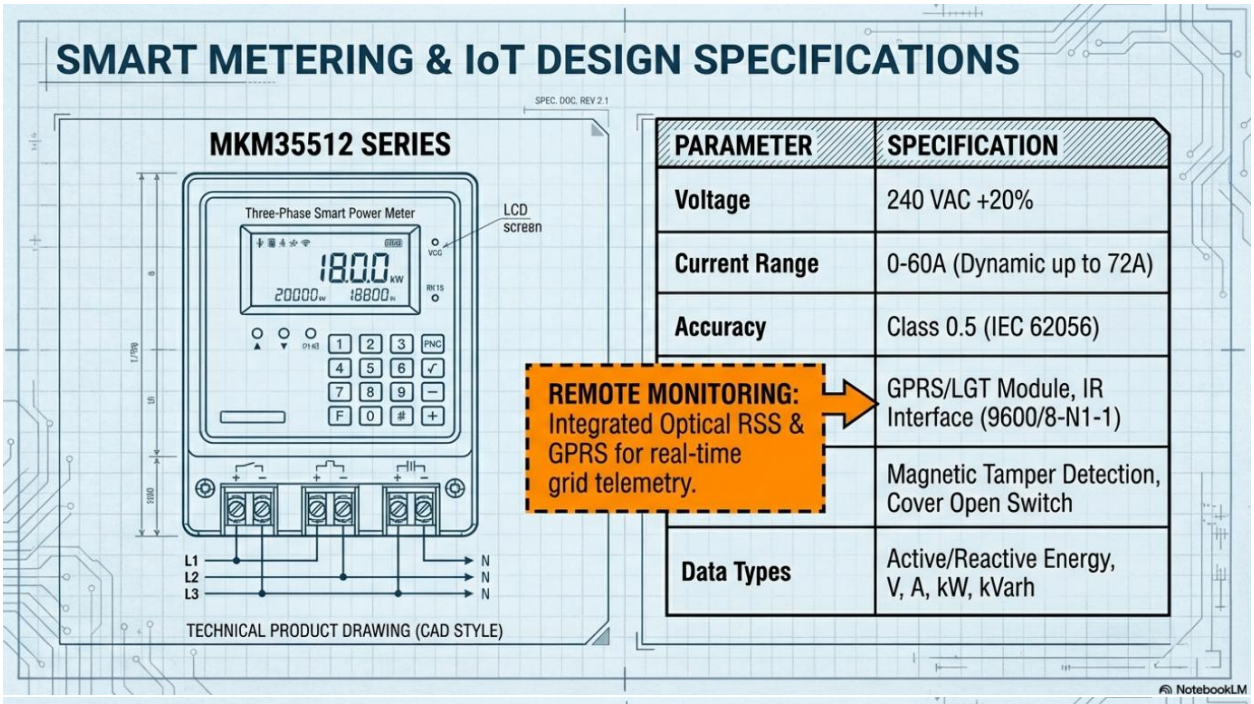
[STRATEGIC VALUE PROPOSITION]
A UNIQUE PROFESSIONAL PROFILE
MERGING ENGINEERING PRECISION,
CODING CAPABILITY, AND
LEGAL ACUMEN.
CONTACT & REFERENCE
NAME: Tshingombe Tshitadi Fiston
LOCATION: Johannesburg / Hillbrow (Gauteng)
MOBILE: 072 529 8946
EMAIL: tshingombefiston@gmail.com
WEB: https://tshingombe.com
REFERENCES: Available upon request (Nogada, Section One).
NotebookLM

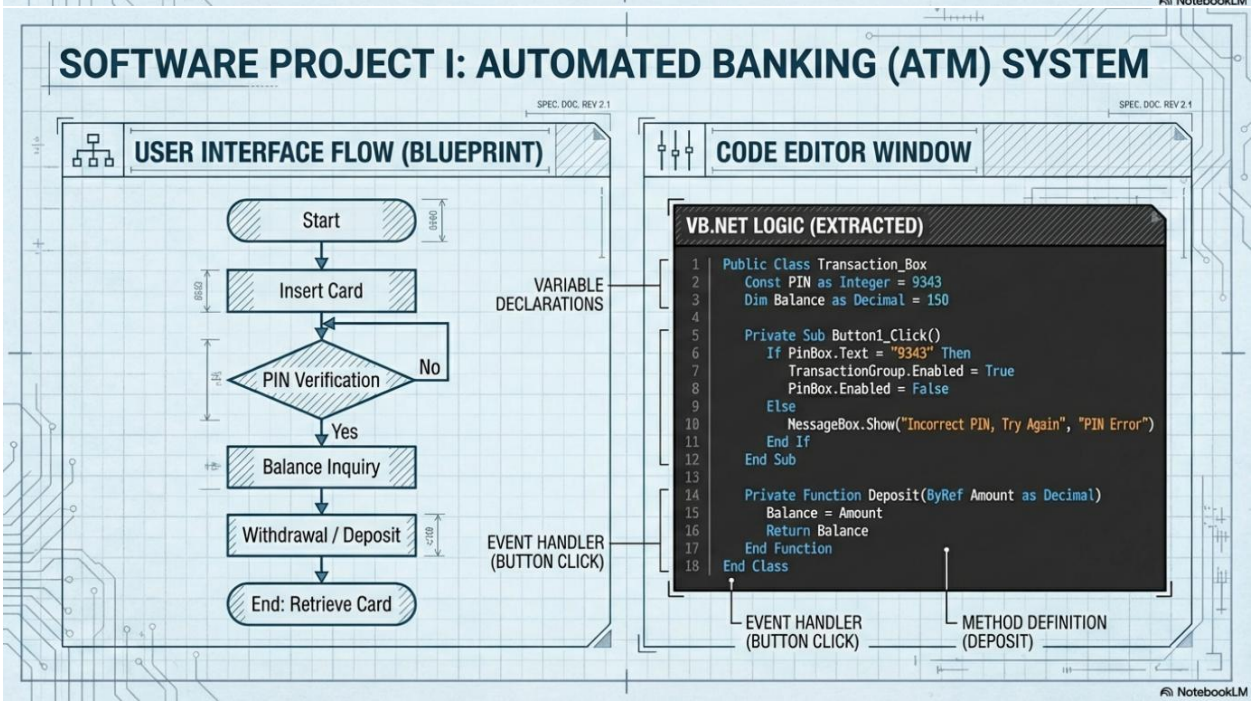

MULTIDISCIPLINARY SYSTEMS ARCHITECT & SECURITY SPECIALIST
Integrating Industrial Hardware, Software Logic, and Legal Compliance Frameworks
If hardwareStatus = "OK" And complianceCheck = True Then
ExecuteSecureOperation()
Else
TriggerAlert("System Compromise or Non-Compliance")
End If
TSHINGOMBE TSHITADI FISTON
Electrical Engineering:
Grid Infrastructure, PV Systems, PLC Automation.
Software Development:
VB.NET, SQL Database, Azure DevOps.
Security & Law:
POPIA Compliance, SAPS Operations, Litigation.
NotebookLM

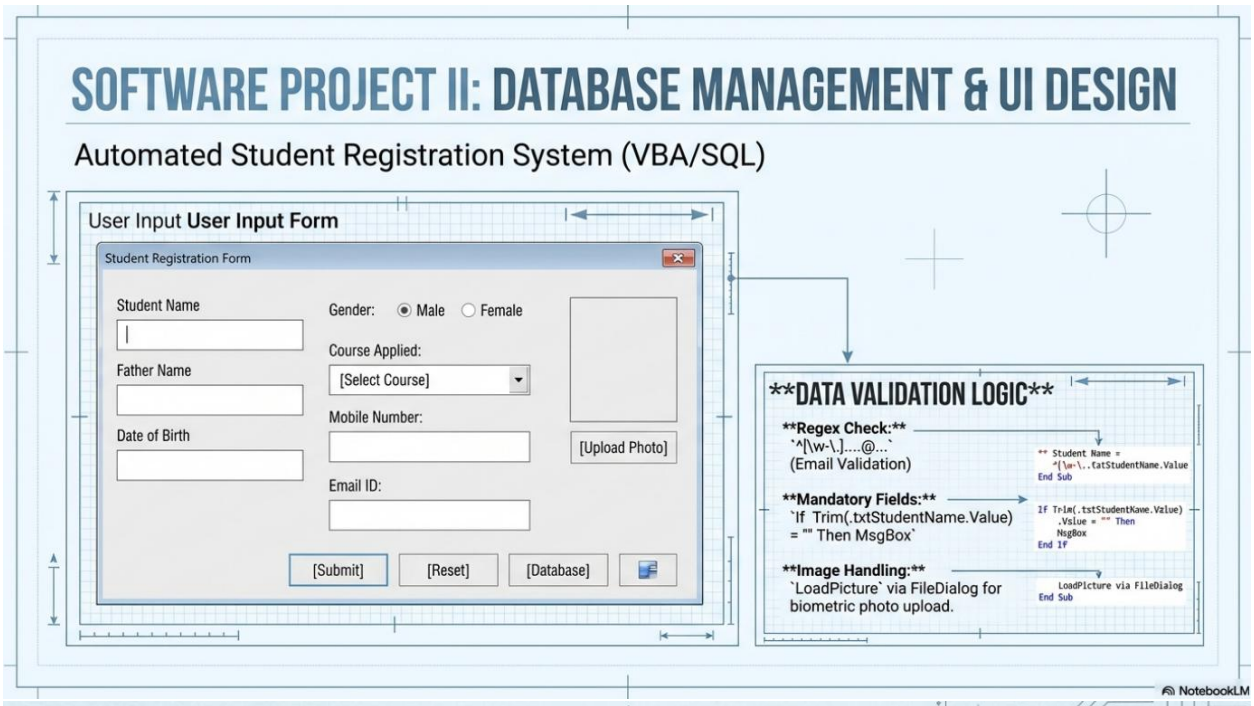

EXECUTIVE PROFILE & QUALIFICATIONS
The Evidence
SECURE FILE ACCESS
SPEC. DOC. REV 2.1
Designation
CURRENT ROLES:
Senior Engineering & Production Engineering
Security Officer & Detective Service
REGISTRATIONS:
PSIRA Registered (Grade A)
SAPS Reservist / Sector Policing
SPEC. DOC. REV 2.1
SECURE FILE ACCESS
Education & Certification:
• Engineering: Nated NVC & Alison Diploma in Engineering
• Specialized Assessment: Schneider Electric & Eaton Assessments (Security Engineering)
• Institutional: St. Peace College (Electrical Certificate)
• Recruitment Training: MET Police UK (Online Module)
KEY PROFESSIONAL ATTRIBUTES
• Technical Mastery: High-voltage grid systems (138kV) and Smart Metering (MKM35512 Series).
• Operational Context: Field experience at Hillbrow Police Station (Gauteng) and Private Security sites.
• Legal Proficiency: Drafting affidavits, CCMA referrals, and Labour Court procedures (Case JA 37/19).
DATA POINTS VERIFIED
NotebookLM

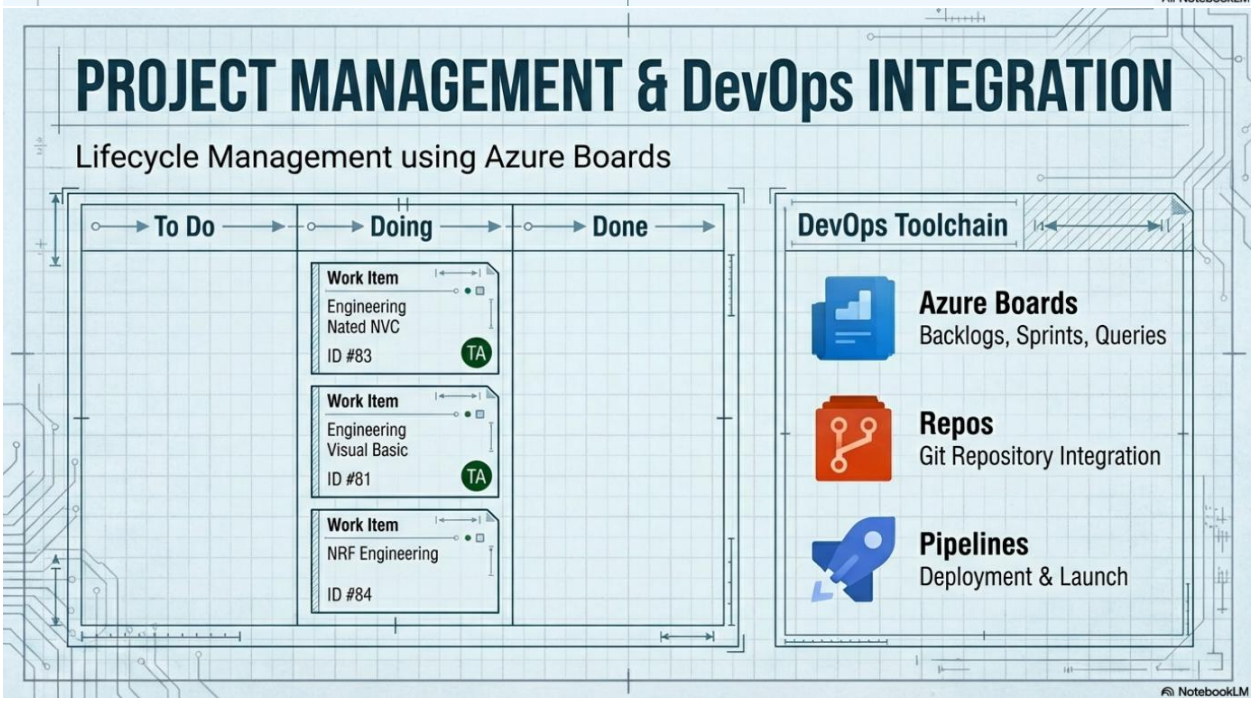

DOMAIN A: INDUSTRIAL ELECTRICAL INFRASTRUCTURE
Grid Hierarchy & Renewable Energy Integration
GENERATION STATION
Transmission Step-Up (138kV)
V
SUB-TRANSMISSION GRID (26kV / 69kV)
V
MAIN STATION SUBSTATION (13kV / 4kV)
V
WORKSHOP 1 & 2 (Industrial Load)
V
PRIMARY CUSTOMER (Domestic)
SPECIFICATION BOX
RENEWABLE ENERGY SPECS:
• PV Installation Capacity: 6.5kW to 250kW (Grid-Tied)
• Protection: Output Reactors, DV/DT Filters, Input Disconnectors
• Components: MV/LV Transformers, Micrologic Protection Units
NotebookLM

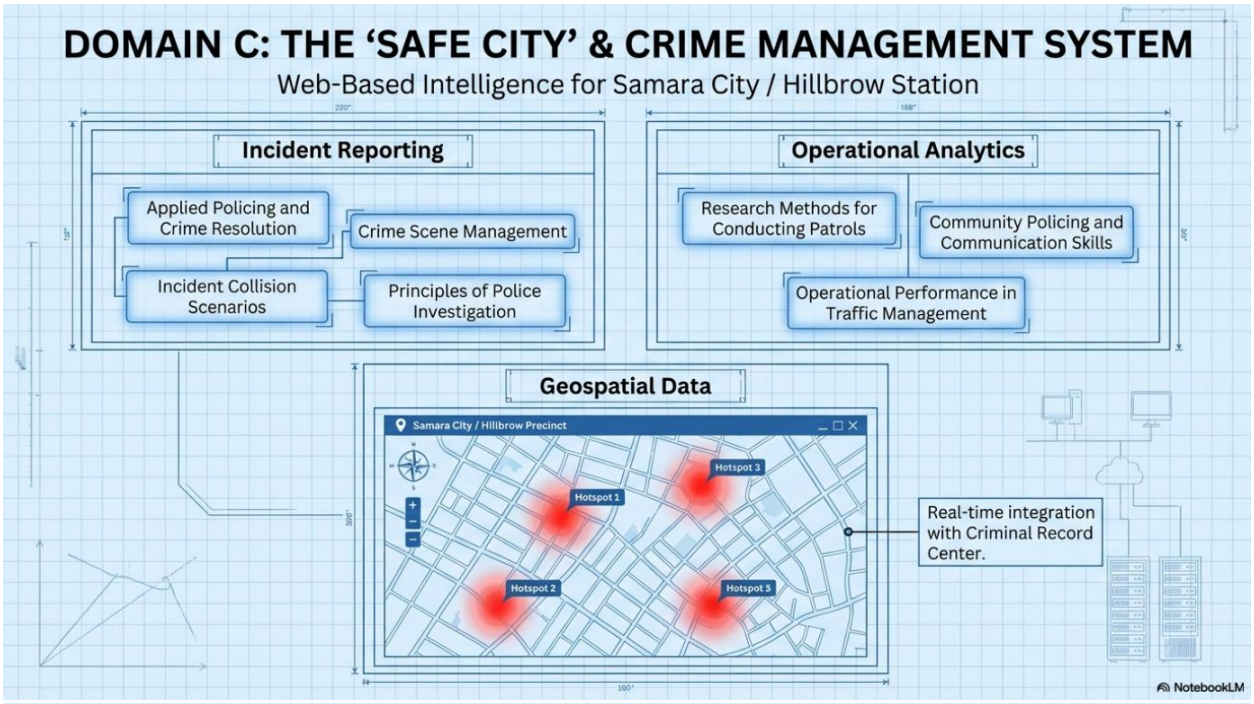

AUTOMATION, PLC CONTROL & MOTOR MANAGEMENT
LOGIC & ADDRESSING
PLC CPU
IP Address: 10.126.224.221
Command: Read/Write Data Flows
CPU Inspector: Cmd+000A
Device Code: Cmd+D*
LOGIC ANALYZER VIEW
EXECUTION FLOW
If b0<50 then level 1
Digital write (led bank, low)
// Arduino/PBasic Modulation Logic
MOTOR CONTROL HARDWARE
L1
L2
L3
TeSys TLTMR Controller
MOTOR
Thermistor Circuit Protection
Variable Speed Drive (VSD)
Clearance Zone: Danger / Warning
NotebookLM

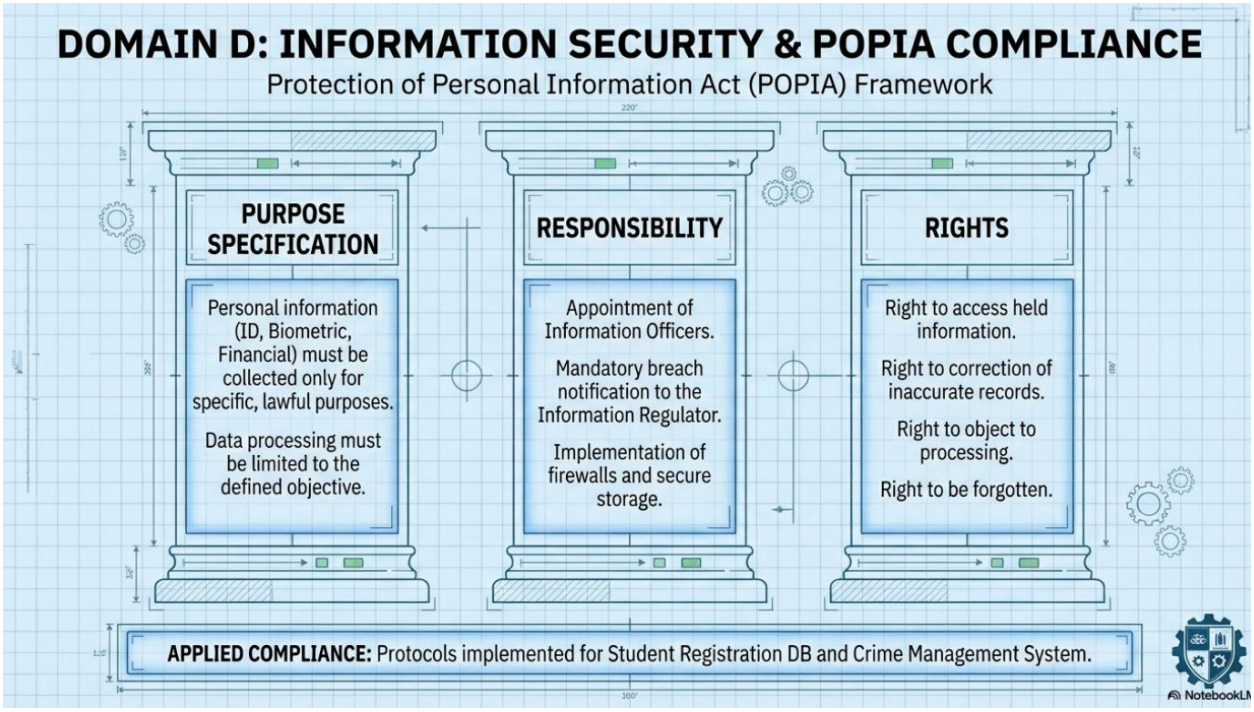

SMART METERING & IoT DESIGN SPECIFICATIONS
SPEC. DOC. REV 2.1
MKM35512 SERIES
Three-Phase Smart Power Meter
LCD screen
L1
L2
L3
N
N
N
TECHNICAL PRODUCT DRAWING (CAD STYLE)
PARAMETER
SPECIFICATION
Voltage
240 VAC +20%
Current Range
0-60A (Dynamic up to 72A)
Accuracy
Class 0.5 (IEC 62056)
REMOTE MONITORING: Integrated Optical RSS & GPRS for real-time grid telemetry.
GPRS/LGT Module, IR Interface (9600/8-N1-1)
Magnetic Tamper Detection, Cover Open Switch
Data Types
Active/Reactive Energy, V, A, kW, kVarh
NotebookLM

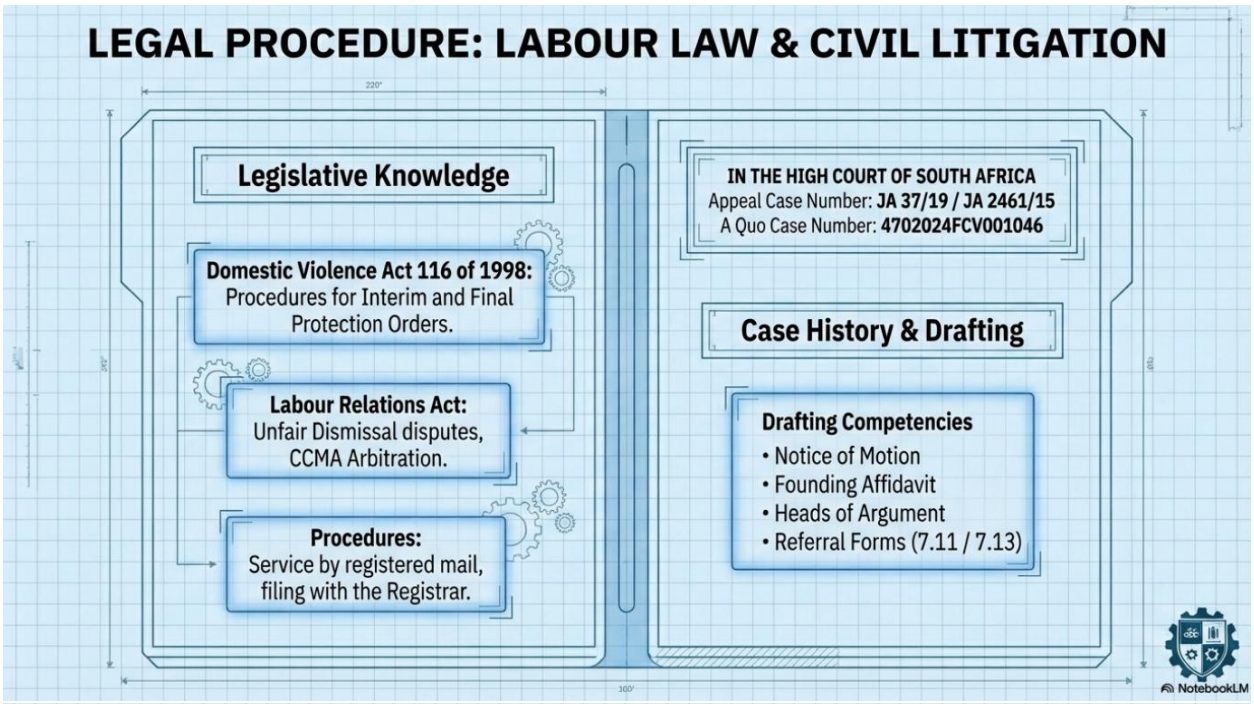

SOFTWARE PROJECT I: AUTOMATED BANKING (ATM) SYSTEM
SPEC. DOC. REV 2.1
USER INTERFACE FLOW (BLUEPRINT)
Start
Insert Card
PIN Verification
No
Yes
Balance Inquiry
Withdrawal / Deposit
End: Retrieve Card
VARIABLE DECLARATIONS
EVENT HANDLER (BUTTON CLICK)
SPEC. DOC. REV 2.1
CODE EDITOR WINDOW
VB.NET LOGIC (EXTRACTED)
Public Class Transaction_Box
Const PIN as Integer = 9343
Dim Balance as Decimal = 150
Private Sub Button1_Click()
If PinBox.Text = "9343" Then
TransactionGroup.Enabled = True
PinBox.Enabled = False
Else
MessageBox.Show("Incorrect PIN, Try Again", "PIN Error")
End If
End Sub
Private Function Deposit(ByRef Amount as Decimal)
Balance = Amount
Return Balance
End Function
End Class
EVENT HANDLER (BUTTON CLICK)
METHOD DEFINITION (DEPOSIT)
NotebookLM

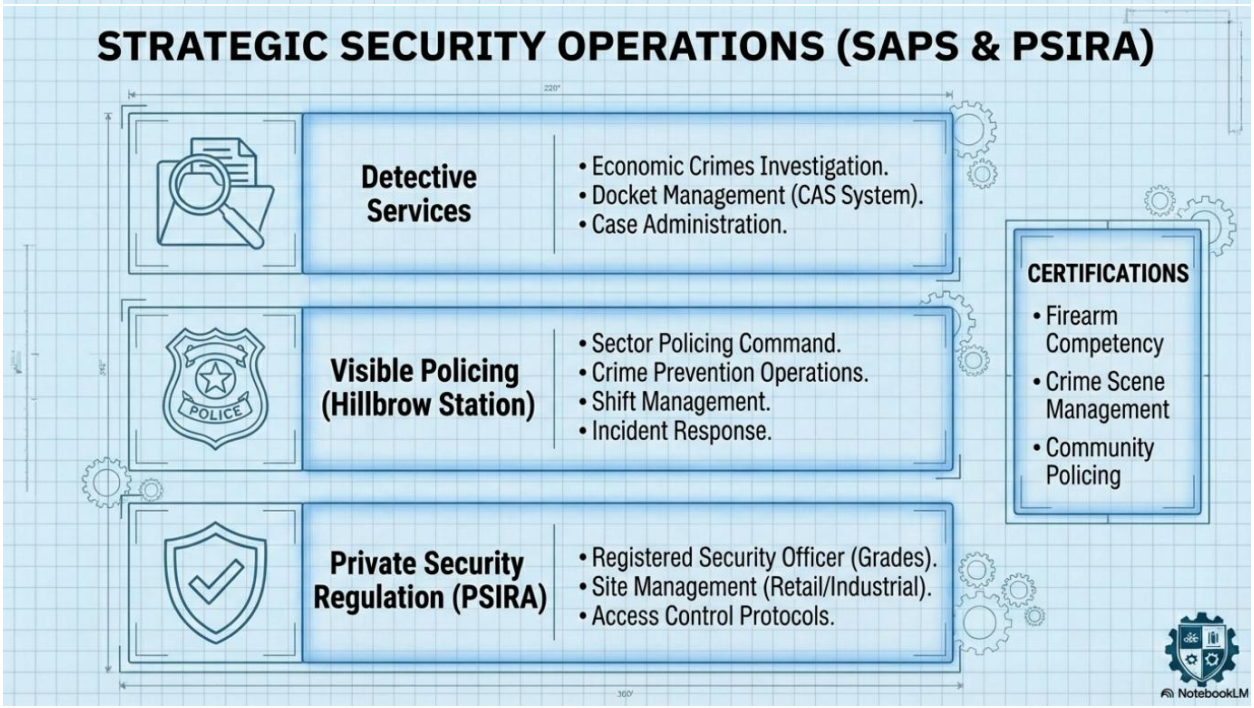

SOFTWARE PROJECT II: DATABASE MANAGEMENT & UI DESIGN
Automated Student Registration System (VBA/SQL)
User Input User Input Form
Student Registration Form
Student Name
Father Name
Date of Birth
Gender: Male Female
Course Applied:
[Select Course]
Mobile Number:
Email ID:
[Upload Photo]
[Submit]
[Reset]
[Database]
DATA VALIDATION LOGIC
Regex Check:
`^[\w-\.]....@...`
(Email Validation)
Mandatory Fields:
`If Trim(.txtStudentName.Value) = "" Then MsgBox`
Image Handling:
`LoadPicture` via FileDialog for biometric photo upload.
NotebookLM

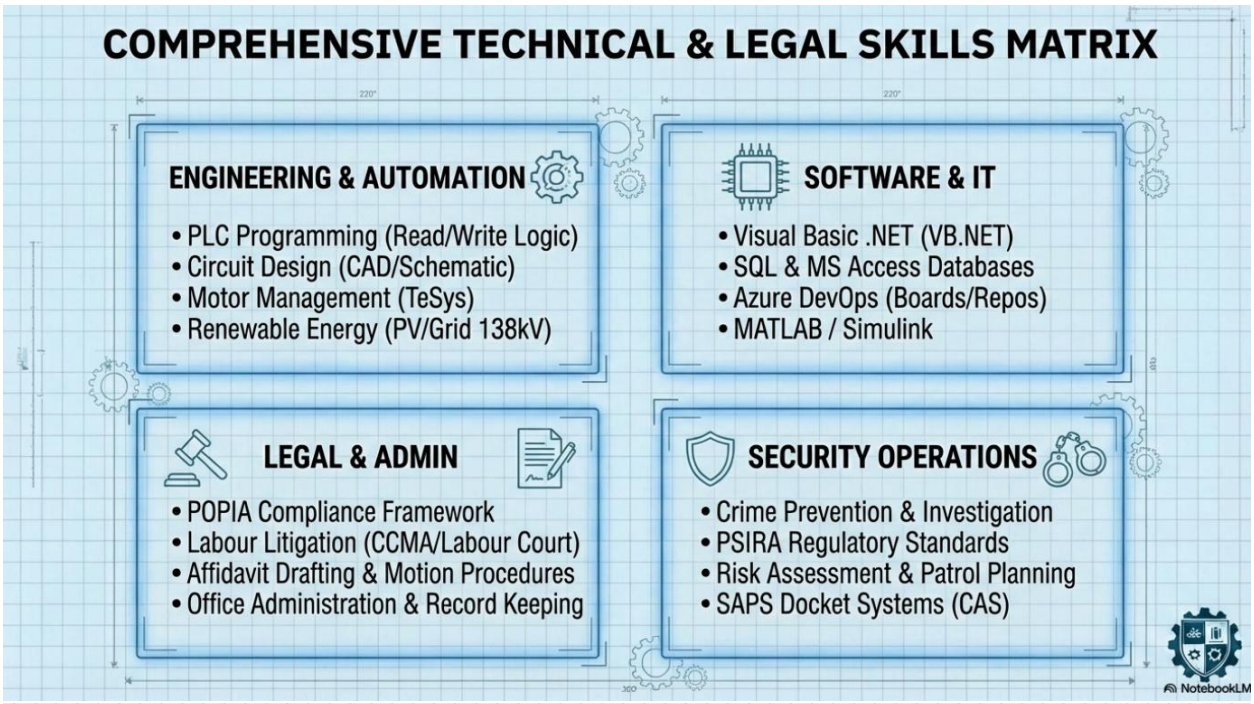

PROJECT MANAGEMENT & DevOps INTEGRATION
Lifecycle Management using Azure Boards
To Do
Doing
Done
Work Item
Engineering
Nated NVC
ID #83
TA
Work Item
Engineering
Visual Basic
ID #81
TA
Work Item
NRF Engineering
ID #84
DevOps Toolchain
Azure Boards
Backlogs, Sprints, Queries
Repos
Git Repository Integration
Pipelines
Deployment & Launch
NotebookLM

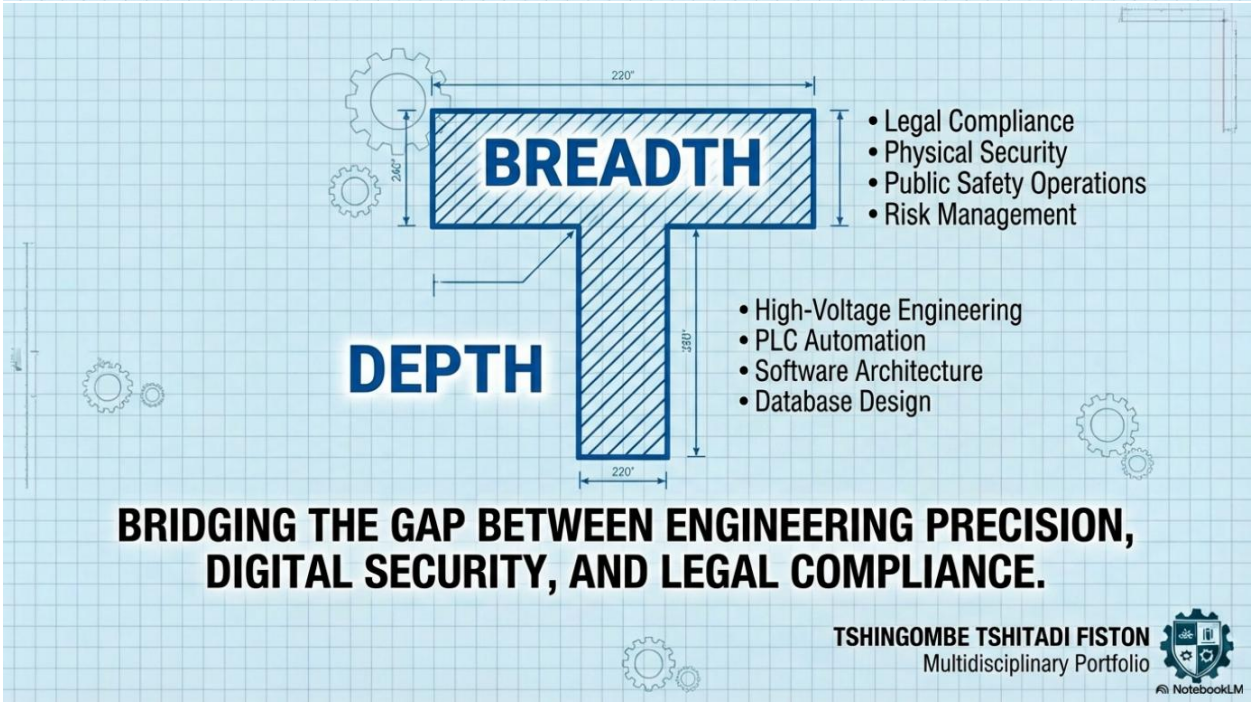

DOMAIN C: THE 'SAFE CITY' & CRIME MANAGEMENT SYSTEM
Web-Based Intelligence for Samara City / Hillbrow Station
Incident Reporting
Applied Policing and Crime Resolution
Crime Scene Management
Incident Collision Scenarios
Principles of Police Investigation
Operational Analytics
Research Methods for Conducting Patrols
Community Policing and Communication Skills
Operational Performance in Traffic Management
Geospatial Data
Samara City / Hillbrow Precinct
Hotspot 1
Hotspot 2
Hotspot 3
Hotspot 3
Real-time integration with Criminal Record Center.
NotebookLM


DOMAIN D: INFORMATION SECURITY & POPIA COMPLIANCE
Protection of Personal Information Act (POPIA) Framework
PURPOSE SPECIFICATION
Personal information (ID, Biometric, Financial) must be collected only for specific, lawful purposes.
Data processing must be limited to the defined objective.
RESPONSIBILITY
Appointment of Information Officers.
Mandatory breach notification to the Information Regulator.
Implementation of firewalls and secure storage.
RIGHTS
Right to access held information.
Right to correction of inaccurate records.
Right to object to processing.
Right to be forgotten.
APPLIED COMPLIANCE: Protocols implemented for Student Registration DB and Crime Management System.
NotebookLM


LEGAL PROCEDURE: LABOUR LAW & CIVIL LITIGATION
Legislative Knowledge
Domestic Violence Act 116 of 1998: Procedures for Interim and Final Protection Orders.
Labour Relations Act: Unfair Dismissal disputes, CCMA Arbitration.
Procedures: Service by registered mail, filing with the Registrar.
IN THE HIGH COURT OF SOUTH AFRICA
Appeal Case Number: JA 37/19 / JA 2461/15
A Quo Case Number: 4702024FCV001046
Case History & Drafting
Drafting Competencies
• Notice of Motion
• Founding Affidavit
• Heads of Argument
• Referral Forms (7.11 / 7.13)
NotebookLM

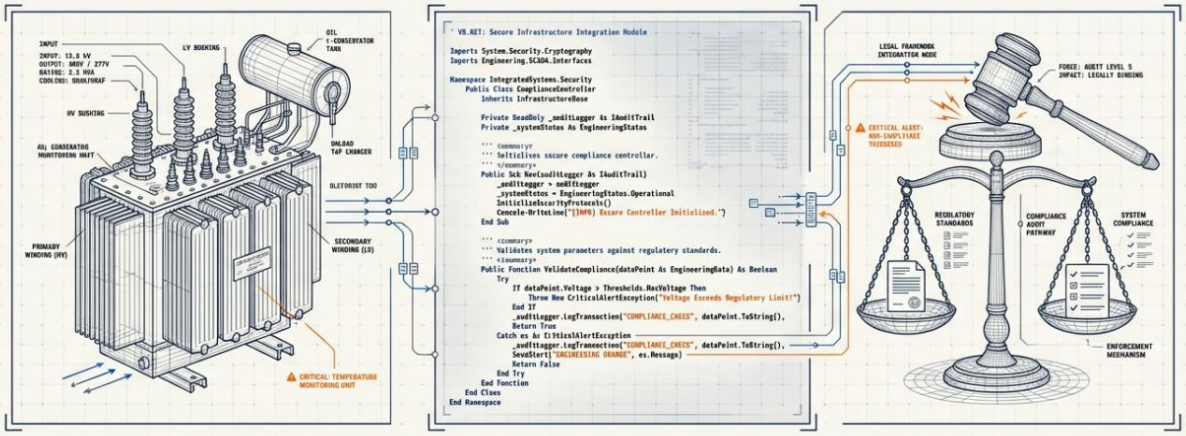

STRATEGIC SECURITY OPERATIONS (SAPS & PSIRA)
Detective Services
• Economic Crimes Investigation.
• Docket Management (CAS System).
• Case Administration.
POLICE
Visible Policing (Hillbrow Station)
• Sector Policing Command.
• Crime Prevention Operations.
• Shift Management.
• Incident Response.
Private Security Regulation (PSIRA)
• Registered Security Officer (Grades).
• Site Management (Retail/Industrial).
• Access Control Protocols.
CERTIFICATIONS
• Firearm Competency
• Crime Scene Management
• Community Policing
NotebookLM


COMPREHENSIVE TECHNICAL & LEGAL SKILLS MATRIX
ENGINEERING & AUTOMATION
• PLC Programming (Read/Write Logic)
• Circuit Design (CAD/Schematic)
• Motor Management (TeSys)
• Renewable Energy (PV/Grid 138kV)
SOFTWARE & IT
• Visual Basic .NET (VB.NET)
• SQL & MS Access Databases
• Azure DevOps (Boards/Repos)
• MATLAB / Simulink
LEGAL & ADMIN
• POPIA Compliance Framework
• Labour Litigation (CCMA/Labour Court)
• Affidavit Drafting & Motion Procedures
• Office Administration & Record Keeping
SECURITY OPERATIONS
• Crime Prevention & Investigation
• PSIRA Regulatory Standards
• Risk Assessment & Patrol Planning
• SAPS Docket Systems (CAS)
NotebookLM


220"
BREADTH
240"
• Legal Compliance
• Physical Security
• Public Safety Operations
• Risk Management
DEPTH
380"
• High-Voltage Engineering
• PLC Automation
• Software Architecture
• Database Design
220"
BRIDGING THE GAP BETWEEN ENGINEERING PRECISION, DIGITAL SECURITY, AND LEGAL COMPLIANCE.
TSHINGOMBE TSHITADI FISTON
Multidisciplinary Portfolio
NotebookLM

INTEGRATED ENGINEERING & SECURITY ECOSYSTEMS

A Multidisciplinary Portfolio: Electrical Infrastructure, Software Architecture, & Legal Compliance



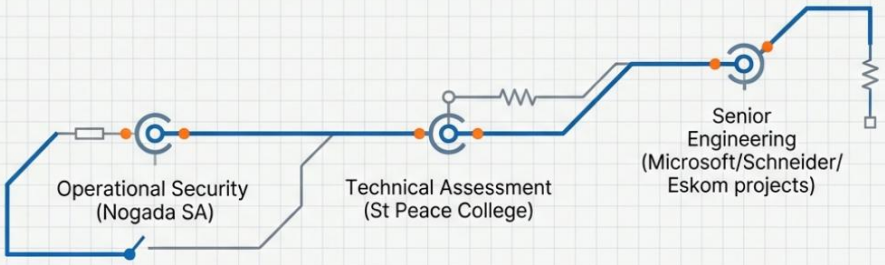
Prepared by Tshingombe Tshitadi Fiston
| Senior Engineering & Security Analyst

NotebookLM

Professional Profile & Core Competencies

Role Definition

Architect of Secure Operational Environments.



Engineering Qualifications

NQF 6 Diploma, Electrical Engineering (St Peace College); Alison Engineering Diploma.

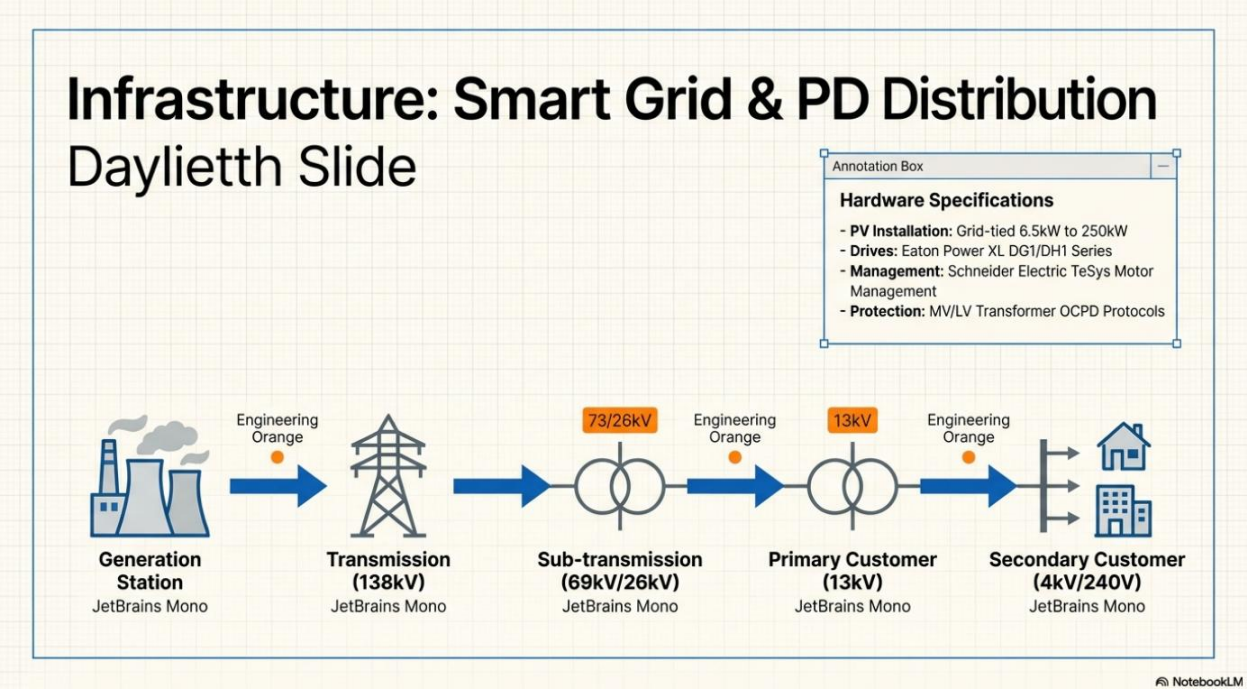
Security & Policing

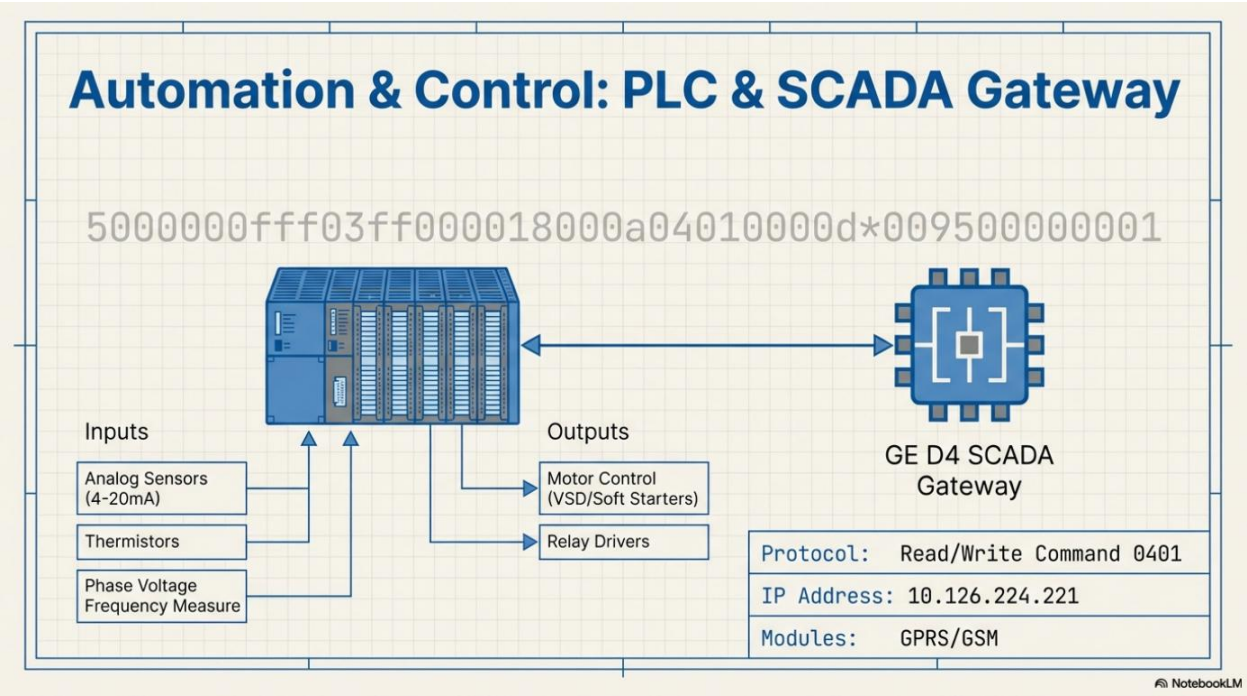
Detective Inspector Training (Met Police UK online); PSIRA Registered (Grade A); SASSETA Skills Skills Development.

Technical Certifications

Certified Azure Defender; Schneider Electric Assessment Expert; Eaton Security Engineering.

NotebookLM


Infrastructure: Smart Grid & PD Distribution
Daylietth Slide
Annotation Box
Hardware Specifications
- PV Installation: Grid-tied 6.5kW to 250kW
- Drives: Eaton Power XL DG1/DH1 Series
- Management: Schneider Electric TeSys Motor Management
- Protection: MV/LV Transformer OCPD Protocols
Engineering Orange
73/26kV
Engineering Orange
13kV
Engineering Orange
Generation Station
JetBrains Mono
Transmission (138kV)
JetBrains Mono
Sub-transmission (69kV/26kV)
JetBrains Mono
Primary Customer (13kV)
JetBrains Mono
Secondary Customer (4kV/240V)
JetBrains Mono
NotebookLM


Automation & Control: PLC & SCADA Gateway
5000000fff03ff000018000a04010000d*009500000001
Inputs
Analog Sensors (4-20mA)
Thermistors
Phase Voltage Frequency Measure
Outputs
Motor Control (VSD/Soft Starters)
Relay Drivers
GE D4 SCADA Gateway
Protocol: Read/Write Command 0401
IP Address: 10.126.224.221
Modules: GPRS/GSM
NotebookLM

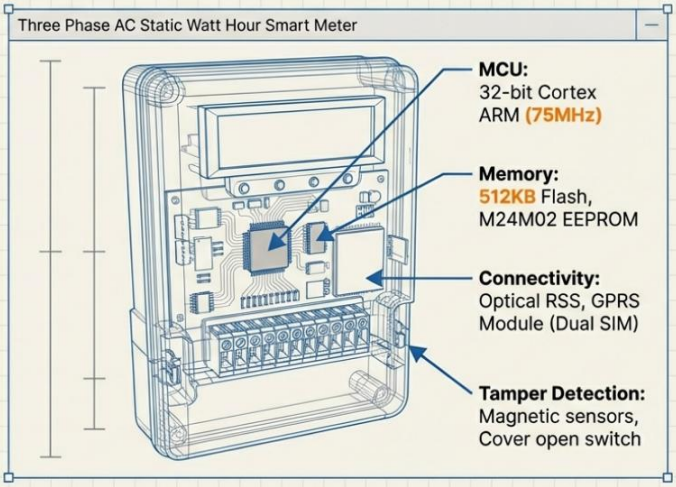
Smart Metering & Energy Algorithms

Active Energy:

$$P = \frac{1}{T}\int u \cdot i \cdot dt$$

Reactive Energy:

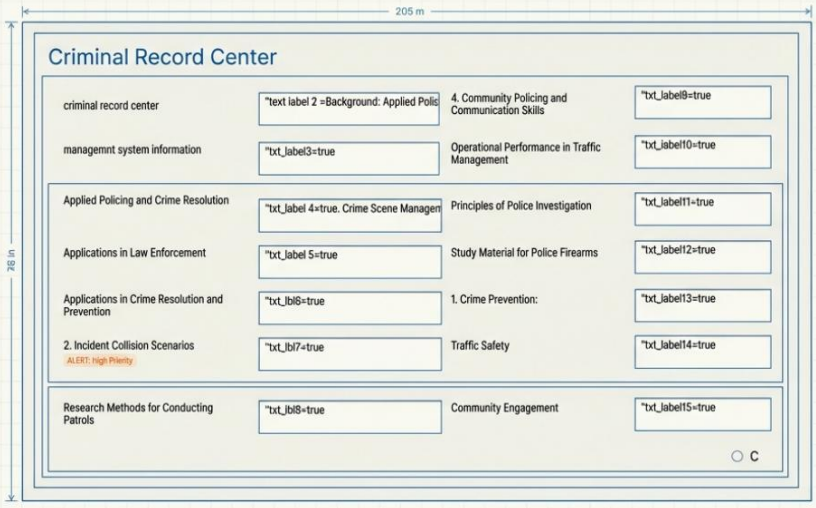
$$Q = \frac{1}{T}\int u(-90) \cdot i \cdot dt$$

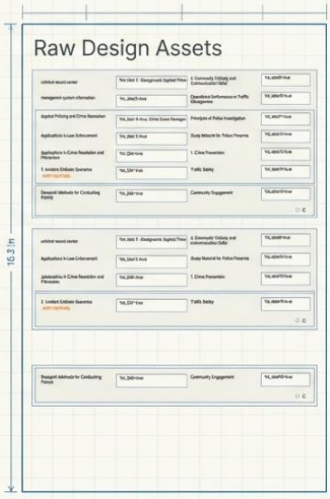


NotebookLM

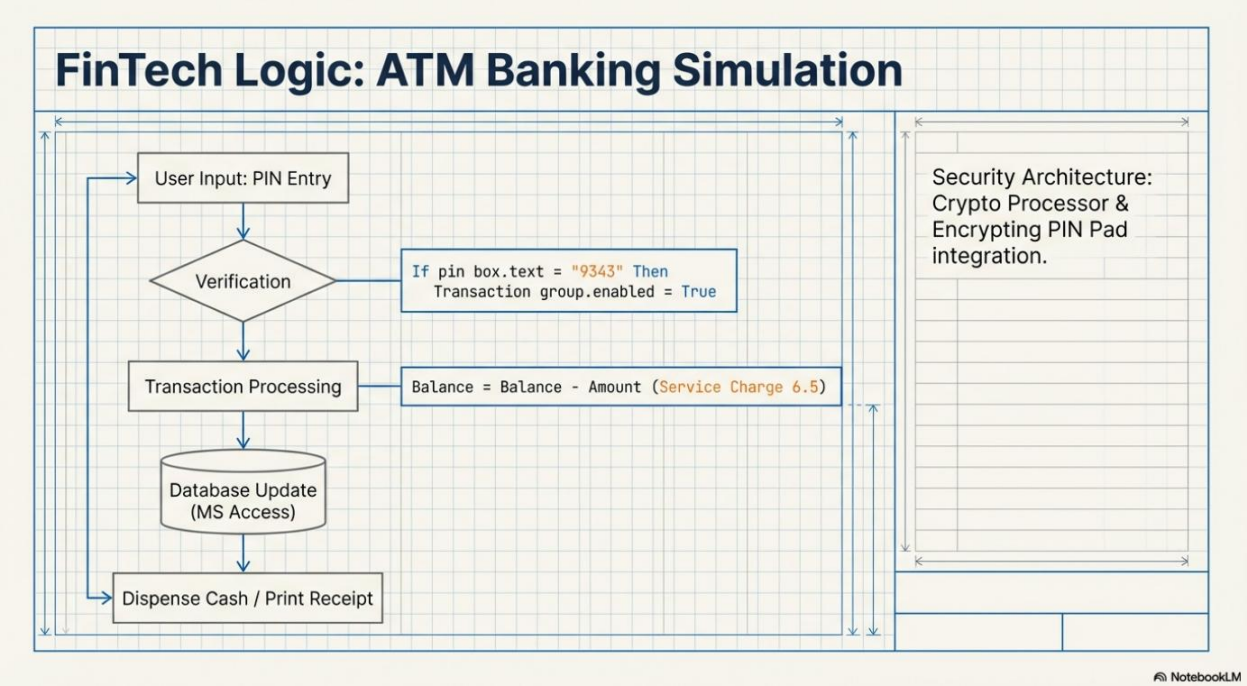
Digital Policing: Web-Based Crime Management System

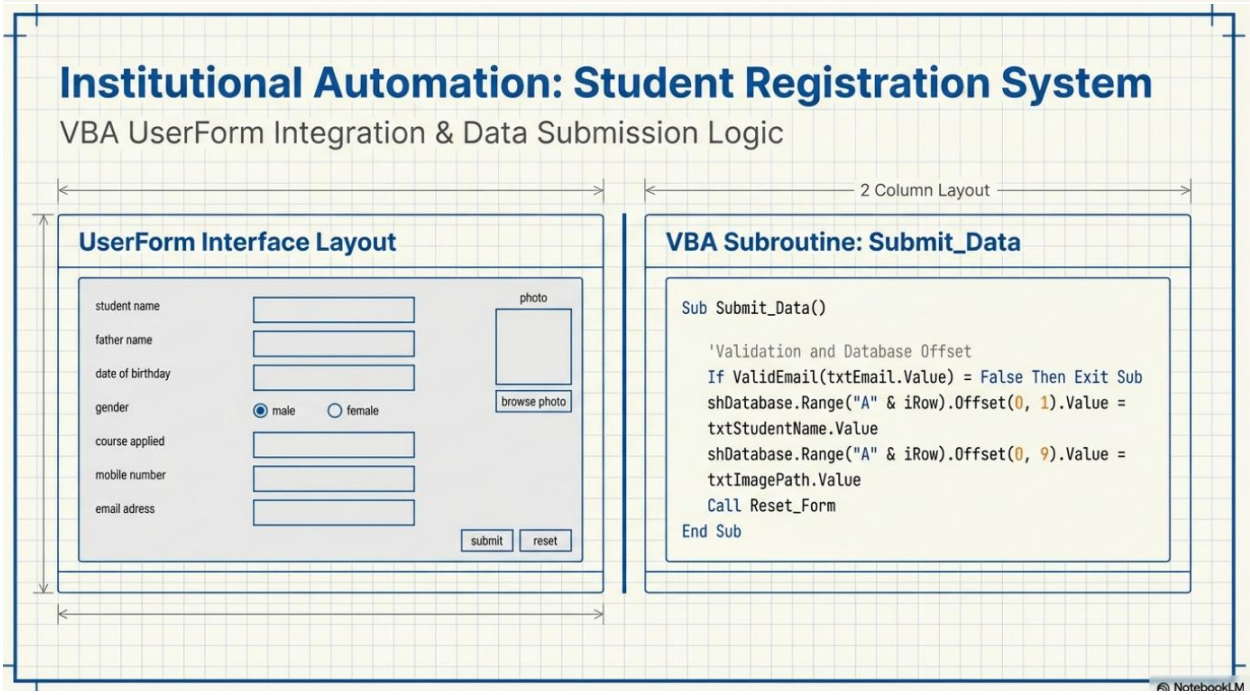
Samara City Main Police Station Database Digitization

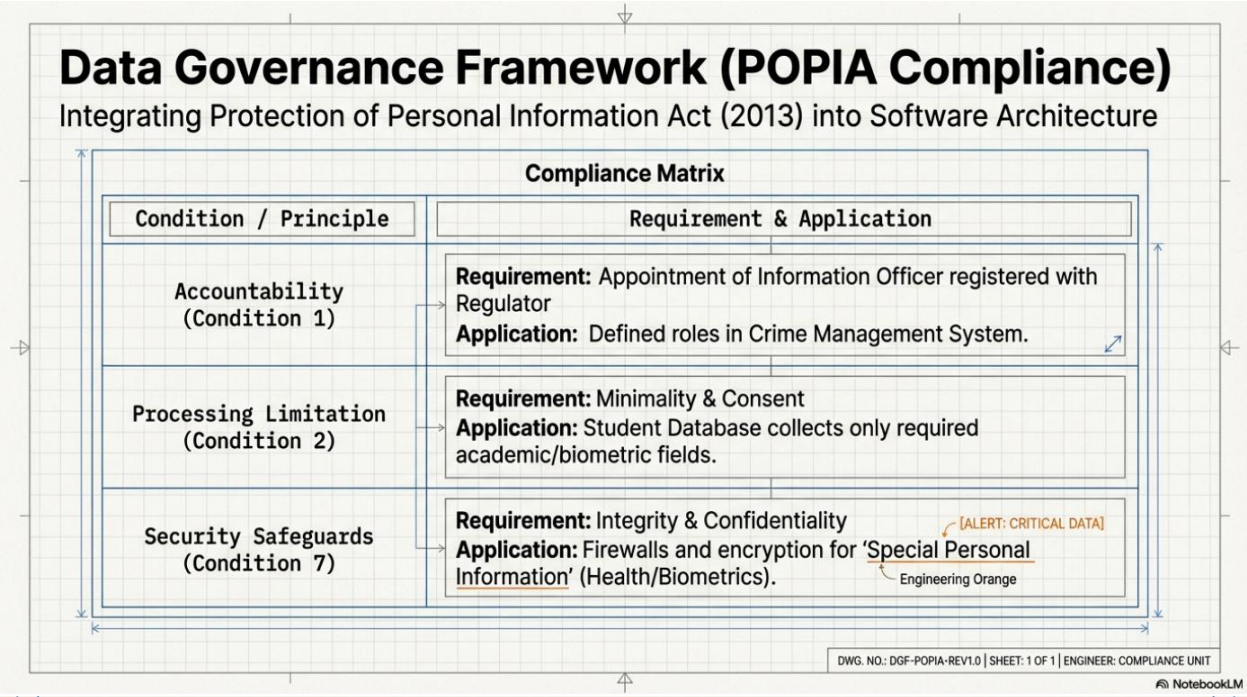


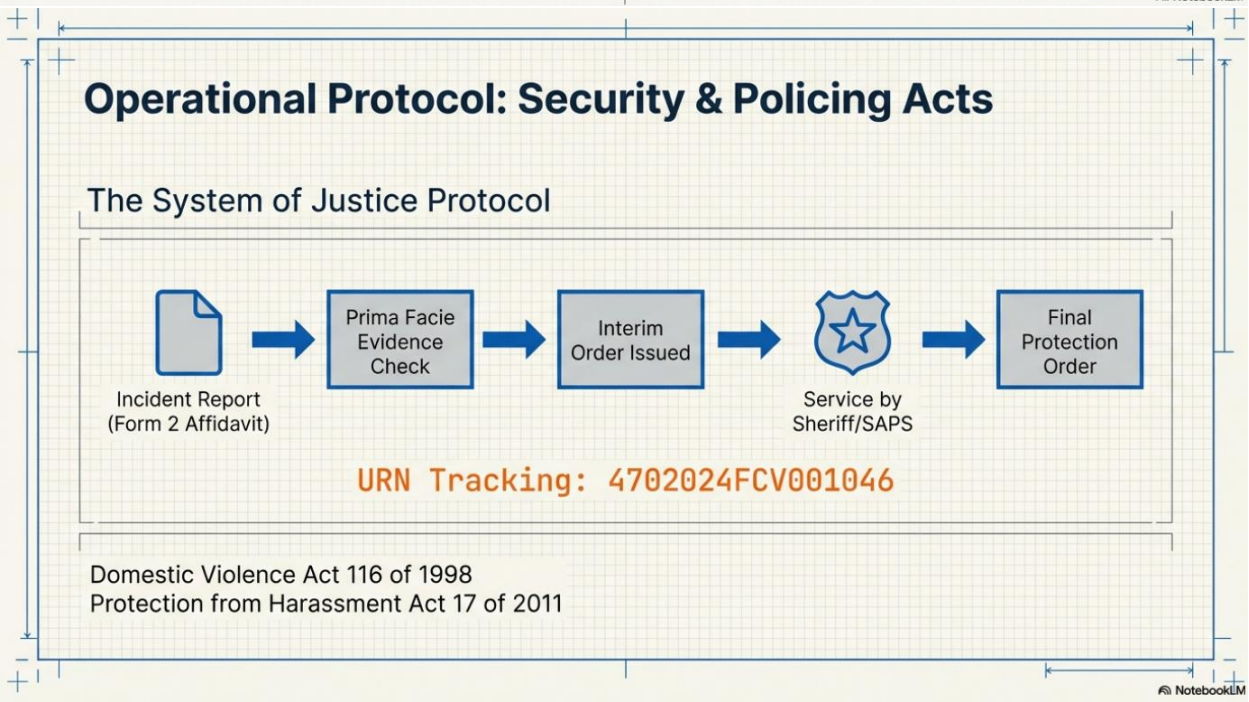


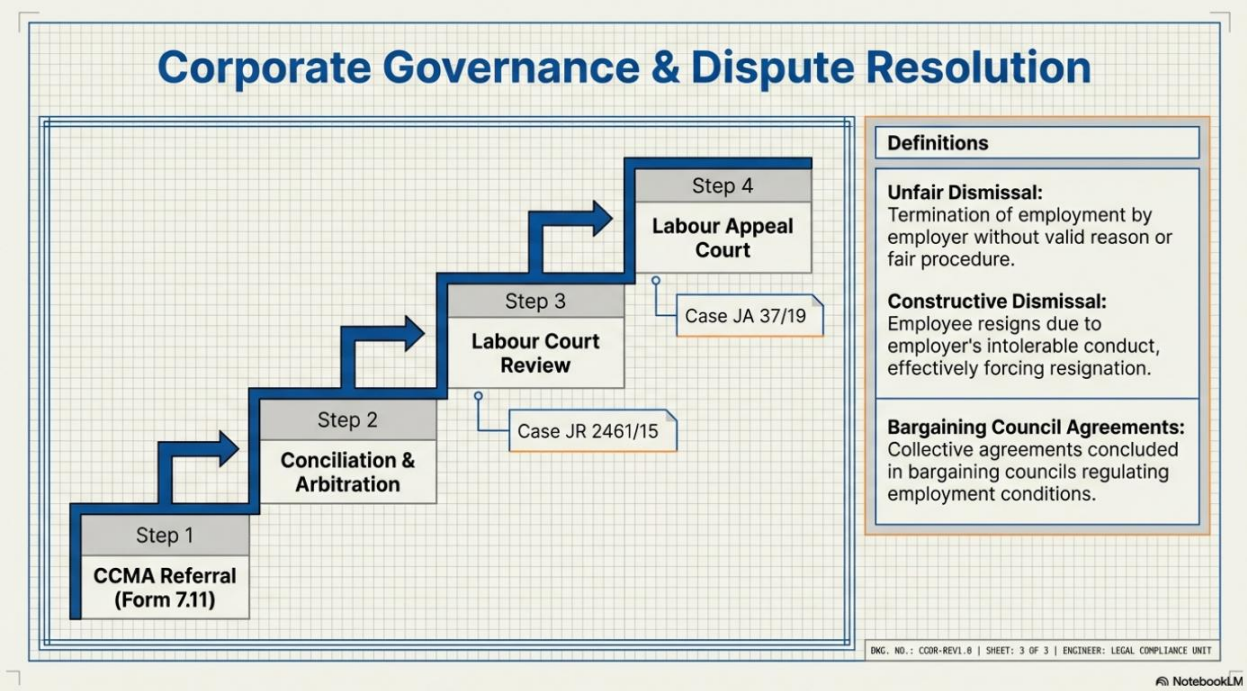
NotebookLM

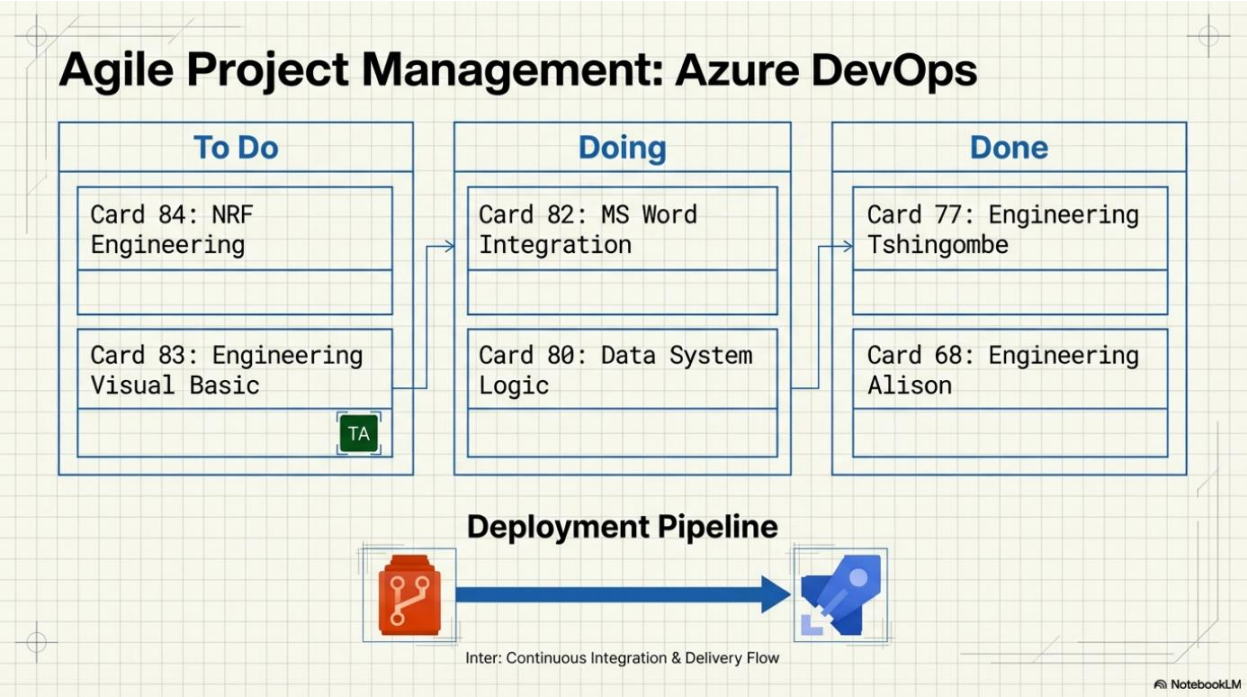

FinTech Logic: ATM Banking Simulation
User Input: PIN Entry
Verification
If pin box.text = "9343" Then
Transaction group.enabled = True
Transaction Processing
Balance = Balance - Amount (Service Charge 6.5)
Database Update
(MS Access)
Dispense Cash / Print Receipt
Security Architecture:
Crypto Processor &
Encrypting PIN Pad
integration.
NotebookLM


Institutional Automation: Student Registration System
VBA UserForm Integration & Data Submission Logic
2 Column Layout
UserForm Interface Layout
student name
father name
date of birthday
gender
male
female
course applied
mobile number
email adress
photo
browse photo
submit
reset
VBA Subroutine: Submit_Data
Sub Submit_Data()
'Validation and Database Offset
If ValidEmail(txtEmail.Value) = False Then Exit Sub
shDatabase.Range("A" & iRow).Offset(0, 1).Value =
txtStudentName.Value
shDatabase.Range("A" & iRow).Offset(0, 9).Value =
txtImagePath.Value
Call Reset_Form
End Sub
NotebookLM


Data Governance Framework (POPIA Compliance)
Integrating Protection of Personal Information Act (2013) into Software Architecture
Compliance Matrix
Condition / Principle
Requirement & Application
Accountability (Condition 1)
Requirement: Appointment of Information Officer registered with Regulator
Application: Defined roles in Crime Management System.
Processing Limitation (Condition 2)
Requirement: Minimality & Consent
Application: Student Database collects only required academic/biometric fields.
Security Safeguards (Condition 7)
Requirement: Integrity & Confidentiality
Application: Firewalls and encryption for 'Special Personal Information' (Health/Biometrics).
[ALERT: CRITICAL DATA]
Engineering Orange
DWG. NO.: DGF-POPIA-REV1.0 | SHEET: 1 OF 1 | ENGINEER: COMPLIANCE UNIT
NotebookLM


Operational Protocol: Security & Policing Acts
The System of Justice Protocol
Incident Report (Form 2 Affidavit)
Prima Facie Evidence Check
Interim Order Issued
Service by Sheriff/SAPS
Final Protection Order
URN Tracking: 4702024FCV001046
Domestic Violence Act 116 of 1998
Protection from Harassment Act 17 of 2011
NotebookLM


Corporate Governance & Dispute Resolution
Step 1
CCMA Referral (Form 7.11)
Step 2
Conciliation & Arbitration
Step 3
Labour Court Review
Case JR 2461/15
Step 4
Labour Appeal Court
Case JA 37/19
Definitions
Unfair Dismissal: Termination of employment by employer without valid reason or fair procedure.
Constructive Dismissal: Employee resigns due to employer's intolerable conduct, effectively forcing resignation.
Bargaining Council Agreements: Collective agreements concluded in bargaining councils regulating employment conditions.
DWG. NO.: CCDR-REV1.0 | SHEET: 3 OF 3 | ENGINEER: LEGAL COMPLIANCE UNIT
NotebookLM


Agile Project Management: Azure DevOps
To Do
Card 84: NRF Engineering
Card 83: Engineering Visual Basic
TA
Doing
Card 82: MS Word Integration
Card 80: Data System Logic
Done
Card 77: Engineering Tshingombe
Card 68: Engineering Alison
Deployment Pipeline
Inter: Continuous Integration & Delivery Flow
NotebookLM

Strategic Vision: The Integrated Safe City

From disconnected components to a responsive, self-regulating urban ecosystem.

NotebookLM

Value Proposition: Engineering. Logic. Law.

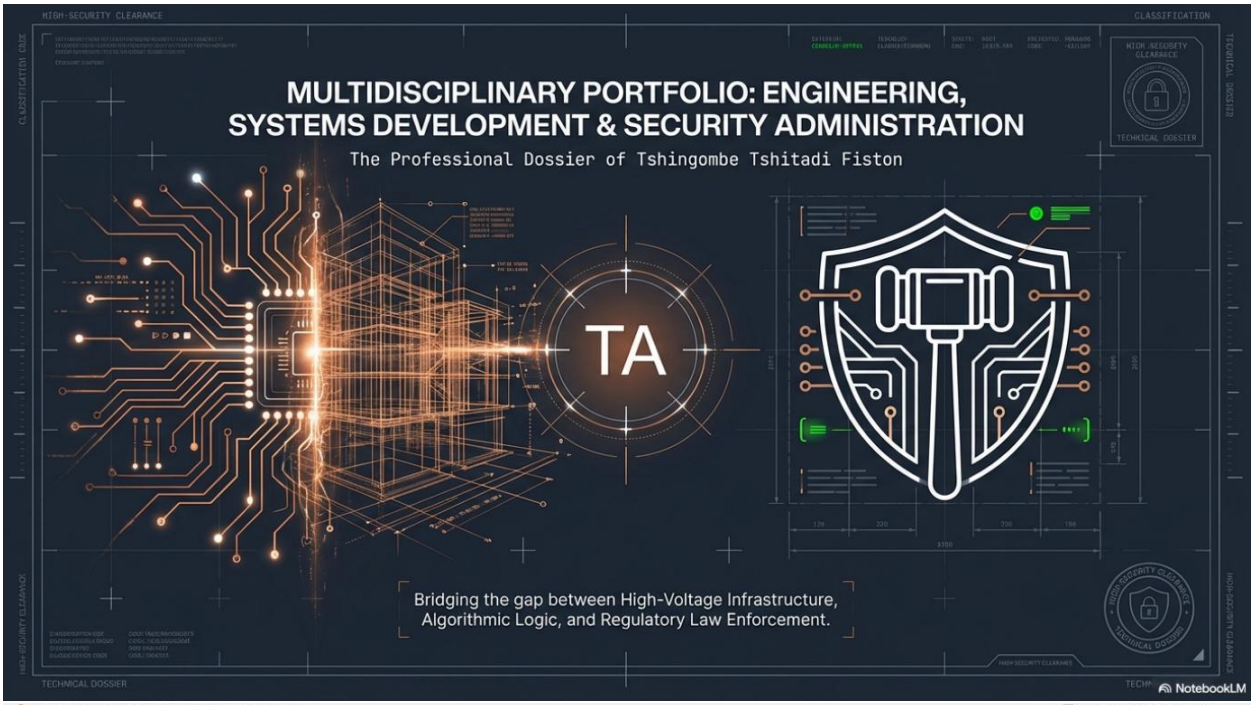
- **Electrical Precision:** HV/LV Systems & Smart Metering
- **Software Logic:** Full-stack Development (VB.NET, SQL, Azure)
- **Regulatory Acumen:** Deep understanding of South African Legal Statutes

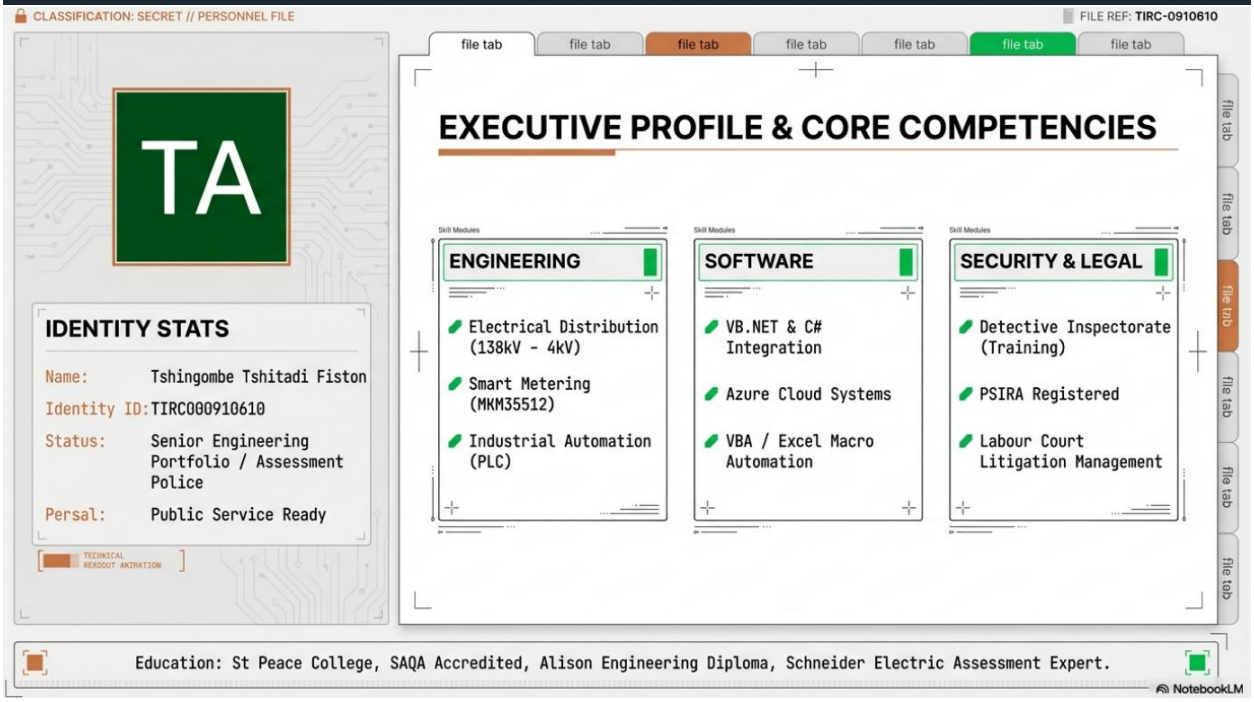
Tshingombe Tshitadi Fiston

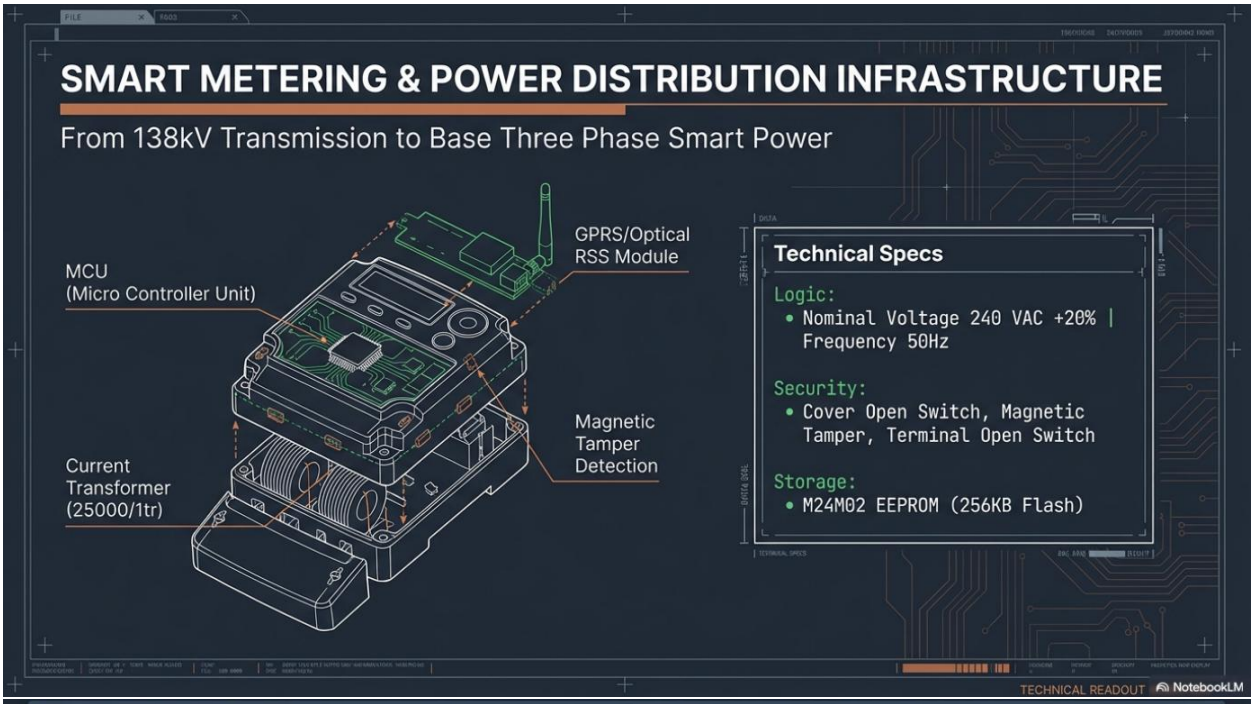
Email: tshingombefiston@gmail.com
Phone: 072 529 8946
Location: Johannesburg / Gauteng

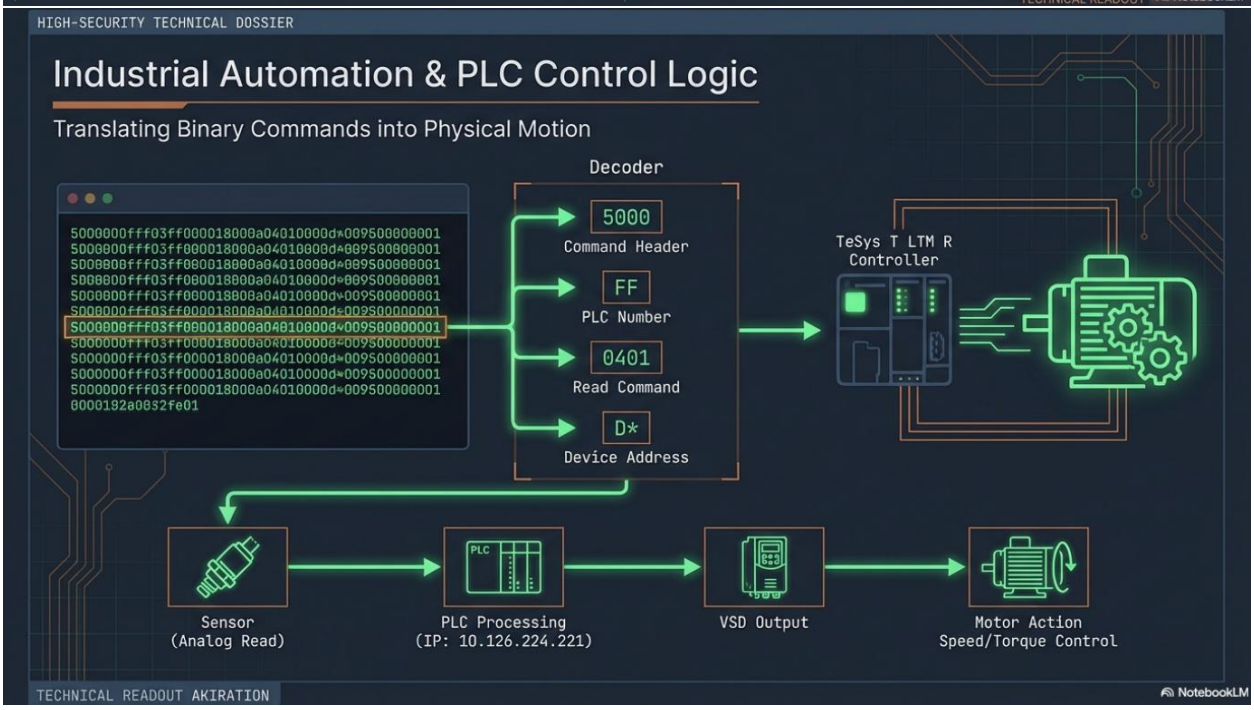
SAPS Microsoft Schneider Electric ECSA Engineering Council of South Africa

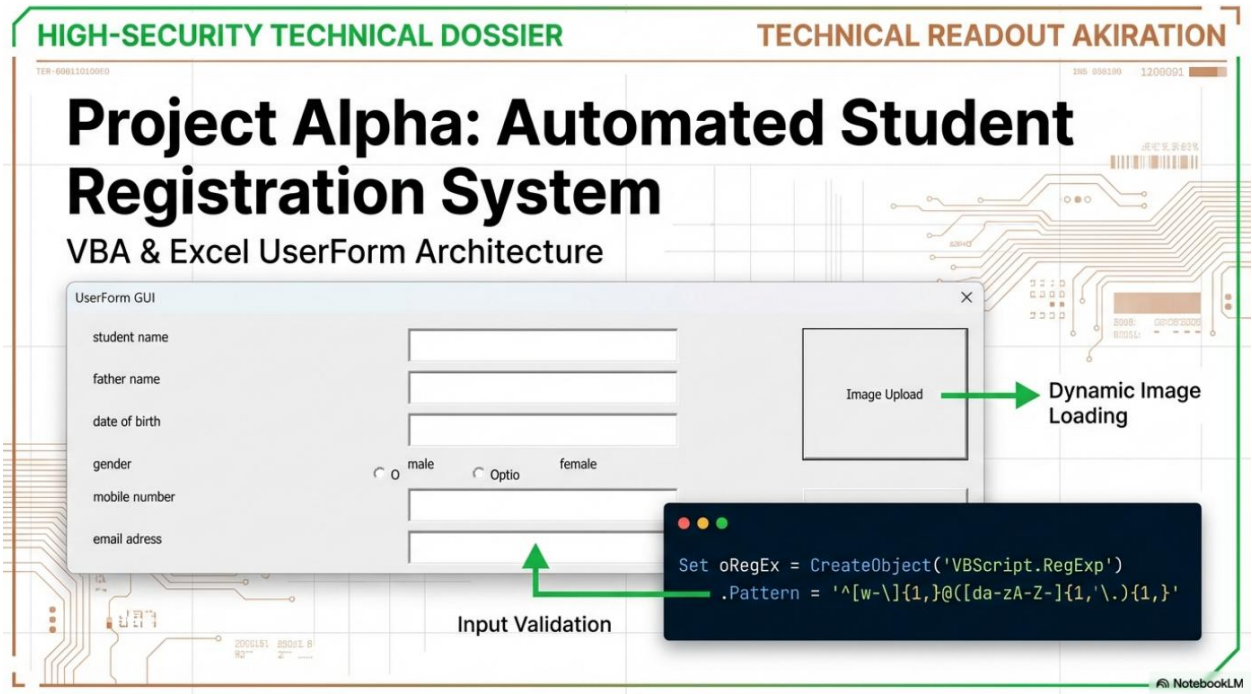
NotebookLM

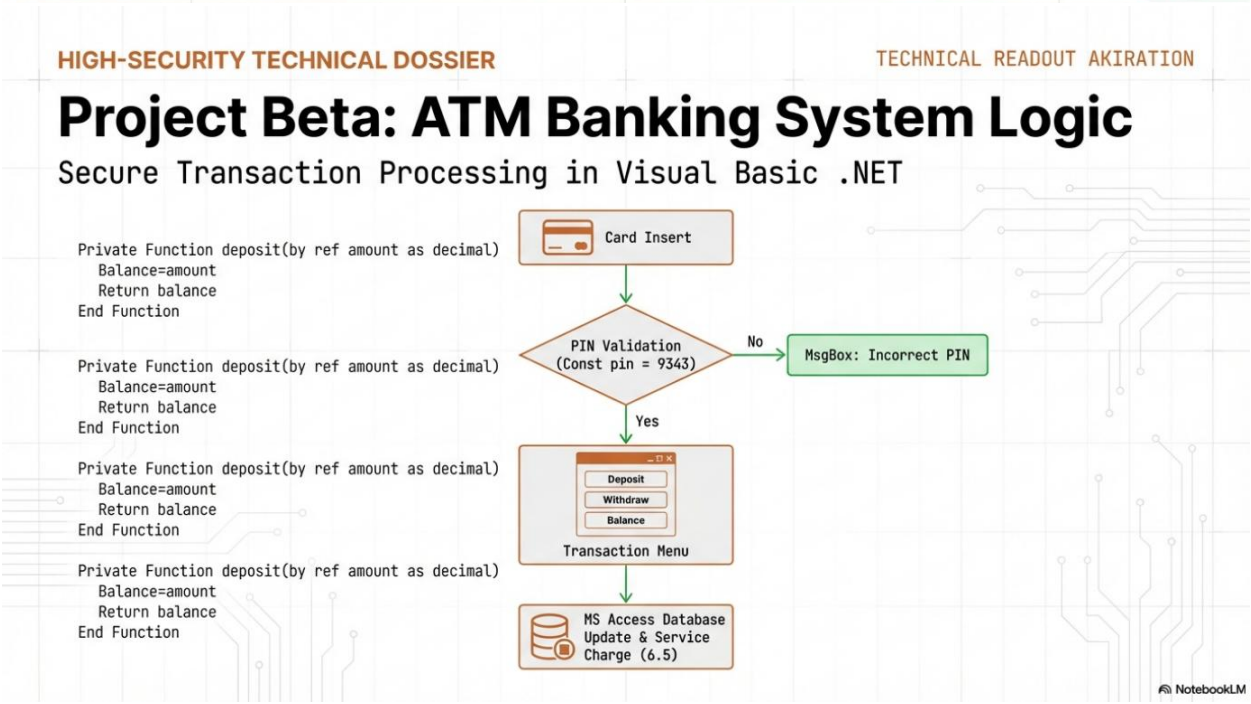

HIGH-SECURITY CLEARANCE
CLASSIFICATION
MULTIDISCIPLINARY PORTFOLIO: ENGINEERING, SYSTEMS DEVELOPMENT & SECURITY ADMINISTRATION
The Professional Dossier of Tshingombe Tshitadi Fiston
TA
Bridging the gap between High-Voltage Infrastructure, Algorithmic Logic, and Regulatory Law Enforcement.
TECHNICAL DOSSIER
NotebookLM


CLASSIFICATION: SECRET // PERSONNEL FILE
FILE REF: TIRC-0910610
file tab
EXECUTIVE PROFILE & CORE COMPETENCIES
TA
IDENTITY STATS
Name: Tshingombe Tshitadi Fiston
Identity ID: TIRC000910610
Status: Senior Engineering Portfolio / Assessment Police
Persal: Public Service Ready
ENGINEERING
Electrical Distribution (138kV - 4kV)
Smart Metering (MKM35512)
Industrial Automation (PLC)
SOFTWARE
VB.NET & C# Integration
Azure Cloud Systems
VBA / Excel Macro Automation
SECURITY & LEGAL
Detective Inspectorate (Training)
PSIRA Registered
Labour Court Litigation Management
Education: St Peace College, SAQA Accredited, Alison Engineering Diploma, Schneider Electric Assessment Expert.
NotebookLM

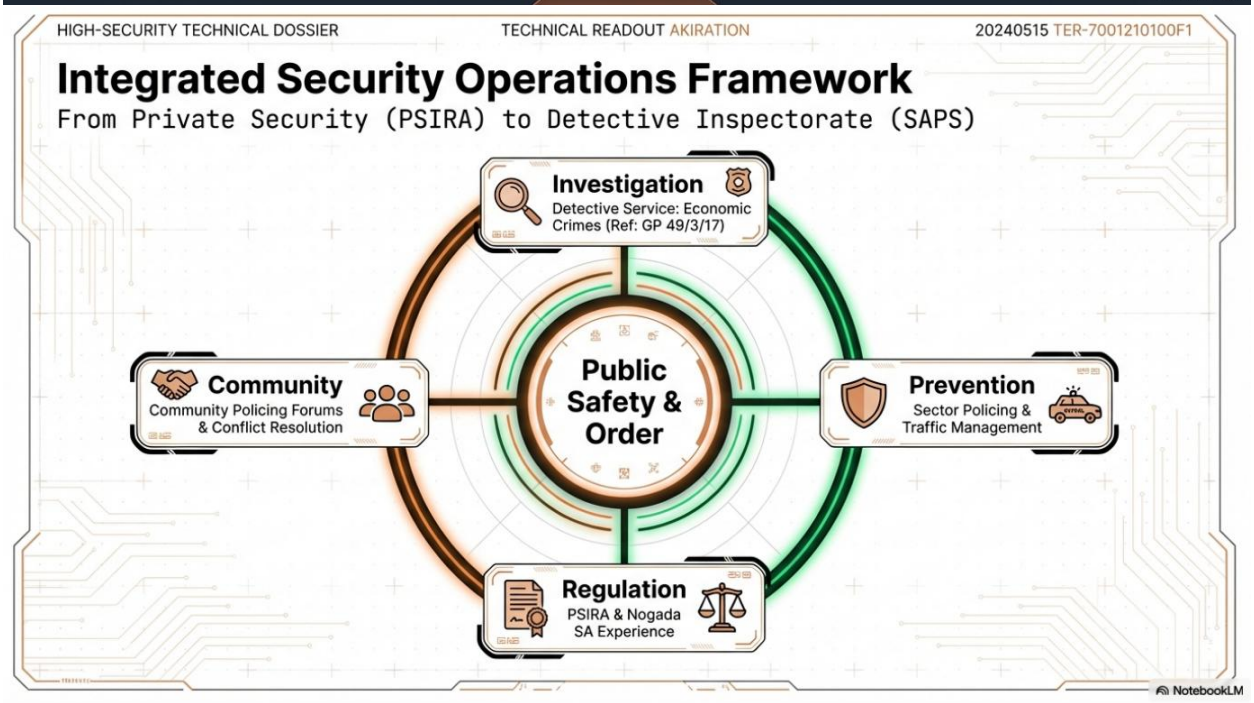

SMART METERING & POWER DISTRIBUTION INFRASTRUCTURE
From 138kV Transmission to Base Three Phase Smart Power
MCU
(Micro Controller Unit)
GPRS/Optical
RSS Module
Magnetic
Tamper
Detection
Current
Transformer
(25000/1tr)
Technical Specs
Logic:
• Nominal Voltage 240 VAC +20% | Frequency 50Hz
Security:
• Cover Open Switch, Magnetic Tamper, Terminal Open Switch
Storage:
• M24M02 EEPROM (256KB Flash)
TECHNICAL READOUT
NotebookLM

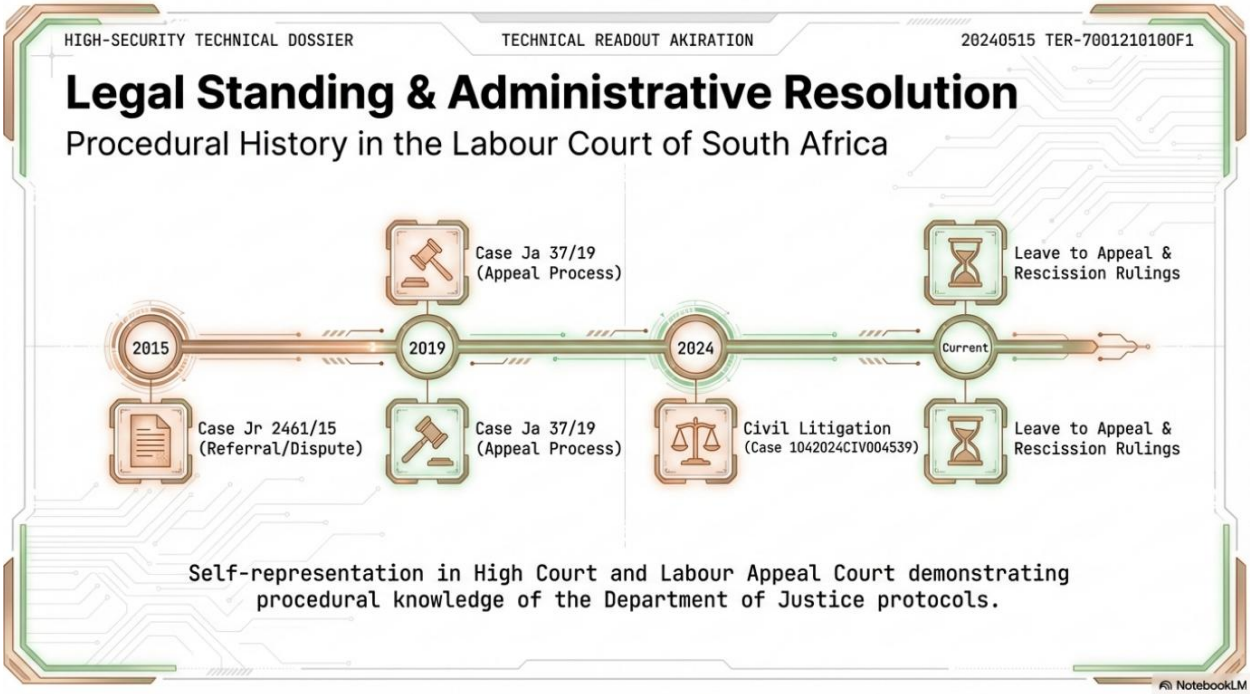

HIGH-SECURITY TECHNICAL DOSSIER
Industrial Automation & PLC Control Logic
Translating Binary Commands into Physical Motion
Decoder
5000
Command Header
FF
PLC Number
0401
Read Command
D*
Device Address
TeSys T LTM R
Controller
Sensor
(Analog Read)
PLC Processing
(IP: 10.126.224.221)
VSD Output
Motor Action
Speed/Torque Control
TECHNICAL READOUT AKIRATION
NotebookLM

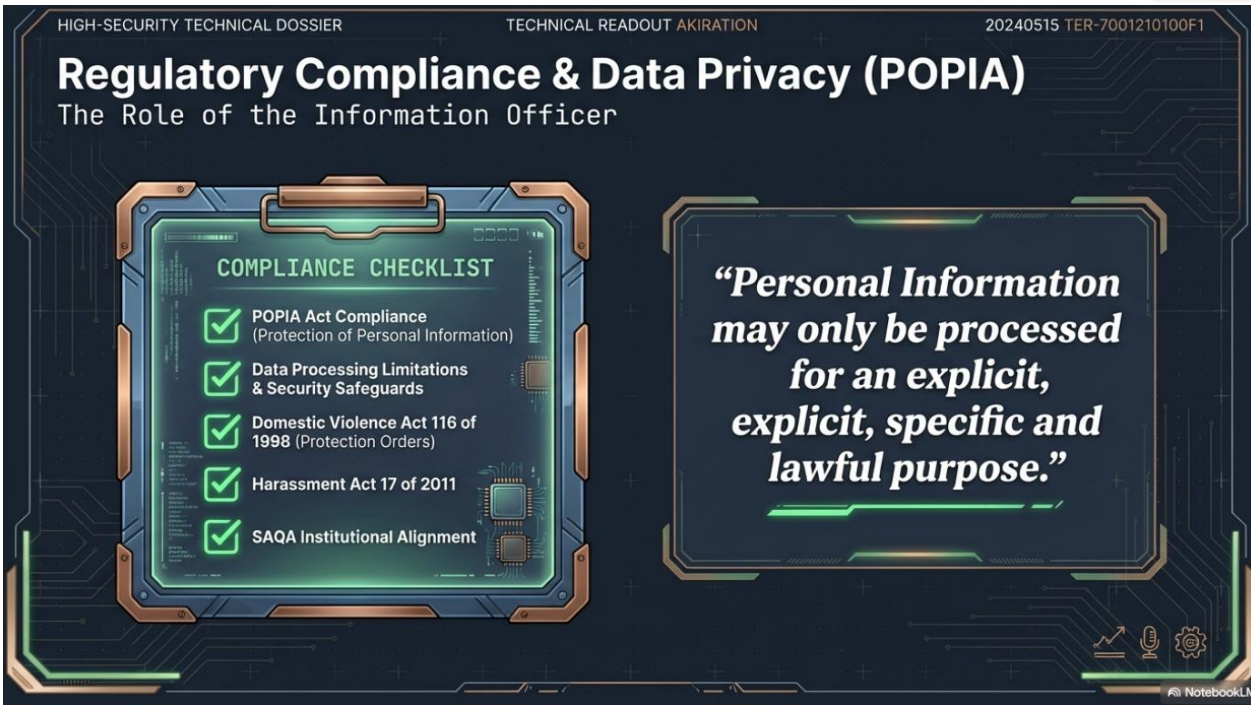

HIGH-SECURITY TECHNICAL DOSSIER
TECHNICAL READOUT AKIRATION
Project Alpha: Automated Student Registration System
VBA & Excel UserForm Architecture
UserForm GUI
student name
father name
date of birth
gender
male
Optio
female
mobile number
email adress
Image Upload
Dynamic Image Loading
Set oRegEx = CreateObject('VBScript.RegExp')
.Pattern = '^[w-\]{1,}@([da-zA-Z-]{1,'\.){1,}'
Input Validation
NotebookLM

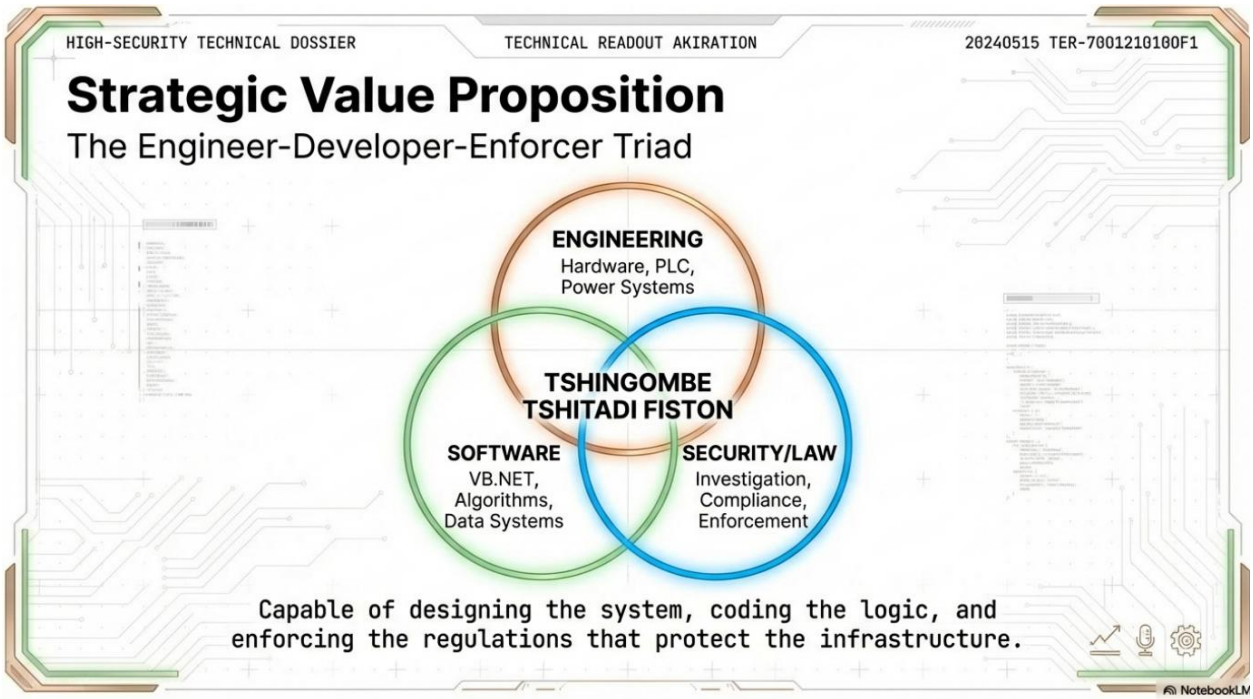

HIGH-SECURITY TECHNICAL DOSSIER
TECHNICAL READOUT AKIRATION
Project Beta: ATM Banking System Logic
Secure Transaction Processing in Visual Basic .NET
Private Function deposit(by ref amount as decimal)
Balance=amount
Return balance
End Function
Private Function deposit(by ref amount as decimal)
Balance=amount
Return balance
End Function
Private Function deposit(by ref amount as decimal)
Balance=amount
Return balance
End Function
Private Function deposit(by ref amount as decimal)
Balance=amount
Return balance
End Function
Card Insert
PIN Validation (Const pin = 9343)
No
MsgBox: Incorrect PIN
Yes
Deposit
Withdraw
Balance
Transaction Menu
MS Access Database Update & Service Charge (6.5)
NotebookLM

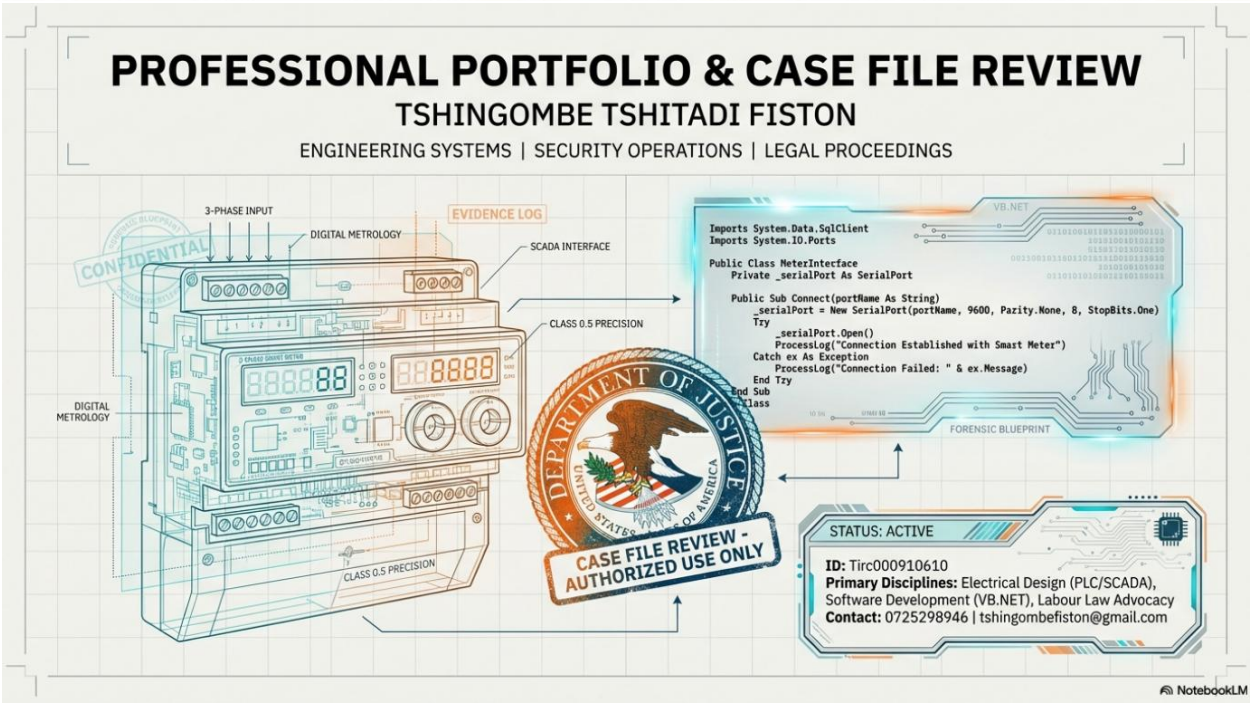
HIGH-SECURITY TECHNICAL DOSSIER
TECHNICAL READOUT AKIRATION
20240515 TER-7001210100F1
Project Gamma: Web-Based Crime Management System (MIS)
Digital Tools for Samara City Police Station
Police Command Dashboard
Criminal Record Center
Management System Information
Applied Policing and Crime Resolution
Principles of Police Investigation
Hotspots
Samara
Strategic Priorities
Crime Prevention
Traffic Safety
Community Engagement
Transition from manual paper files to digital information systems.
NotebookLM

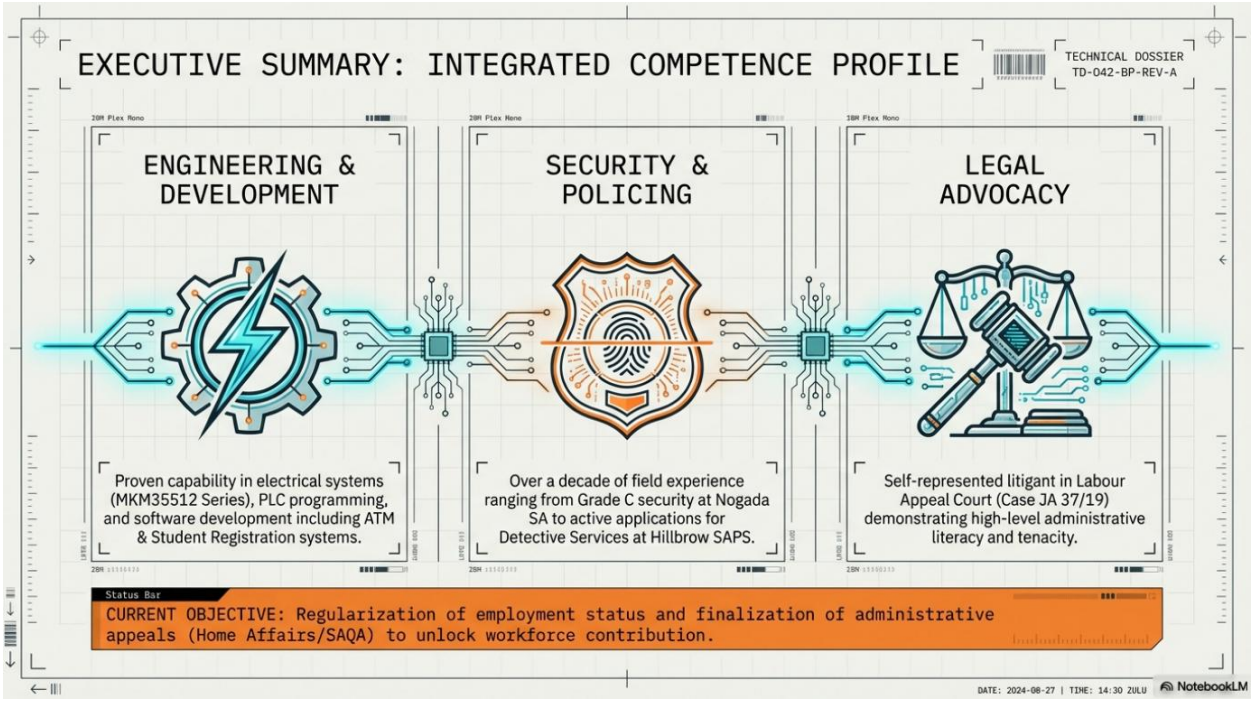

HIGH-SECURITY TECHNICAL DOSSIER
TECHNICAL READOUT AKIRATION
20240515 TER-7001210100F1
Integrated Security Operations Framework
From Private Security (PSIRA) to Detective Inspectorate (SAPS)
Investigation
Detective Service: Economic Crimes (Ref: GP 49/3/17)
Community
Community Policing Forums & Conflict Resolution
Public Safety & Order
Prevention
Sector Policing & Traffic Management
Regulation
PSIRA & Nogada SA Experience
NotebookLM

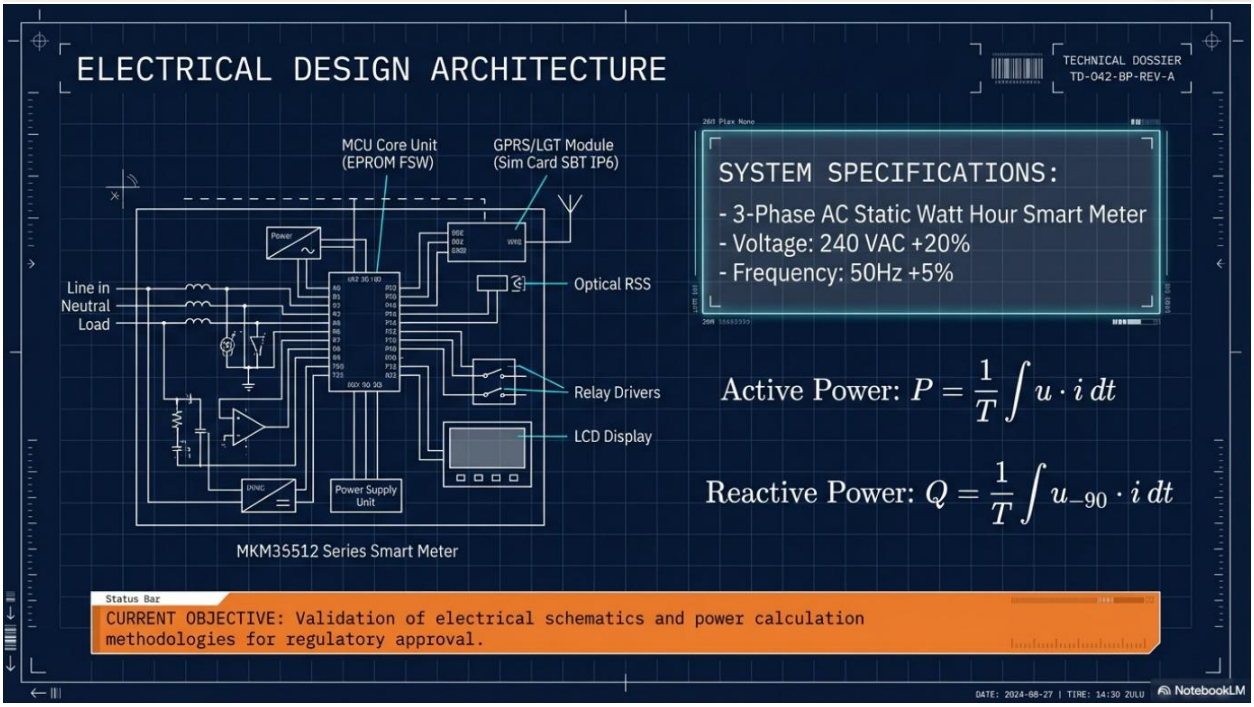

HIGH-SECURITY TECHNICAL DOSSIER
TECHNICAL READOUT AKIRATION
20240515 TER-7001210100F1
Legal Standing & Administrative Resolution
Procedural History in the Labour Court of South Africa
2015
Case Jr 2461/15
(Referral/Dispute)
2019
Case Ja 37/19
(Appeal Process)
Case Ja 37/19
(Appeal Process)
2024
Civil Litigation
(Case 1042024CIV004539)
Current
Leave to Appeal &
Rescission Rulings
Leave to Appeal &
Rescission Rulings
Self-representation in High Court and Labour Appeal Court demonstrating
procedural knowledge of the Department of Justice protocols.
NotebookLM

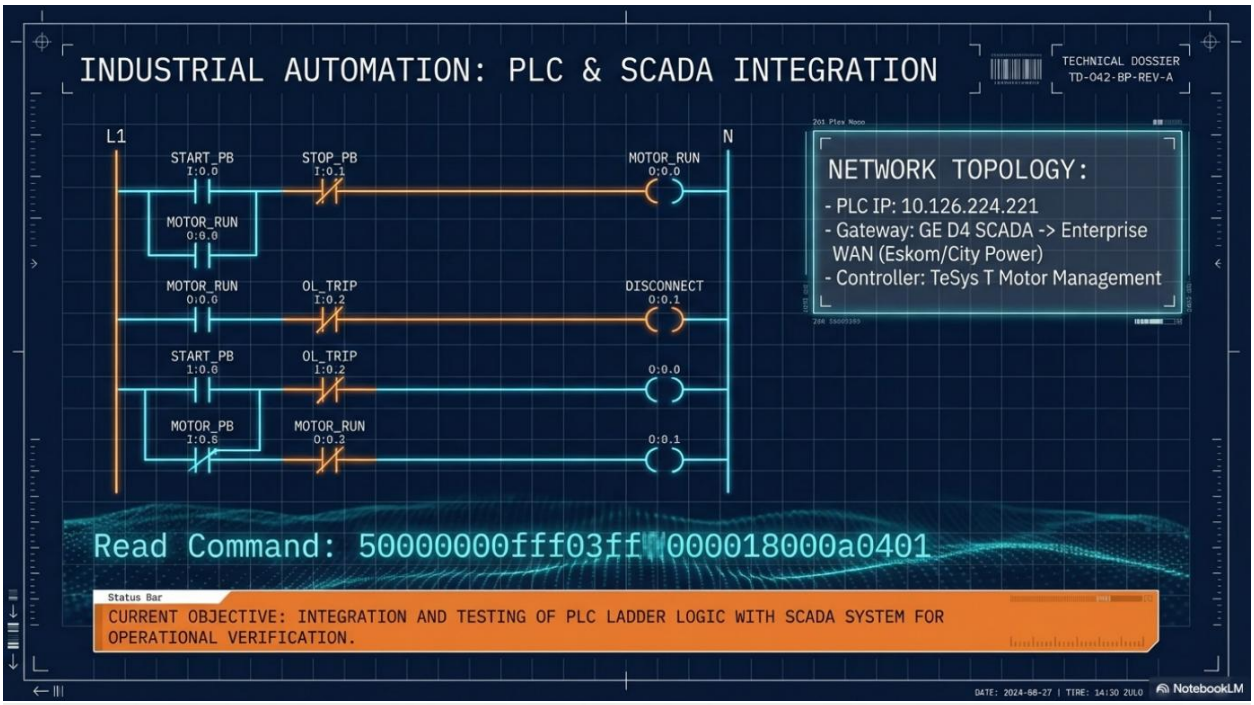

HIGH-SECURITY TECHNICAL DOSSIER
TECHNICAL READOUT AKIRATION
20240515 TER-7001210100F1
Regulatory Compliance & Data Privacy (POPIA)
The Role of the Information Officer
COMPLIANCE CHECKLIST
POPIA Act Compliance
(Protection of Personal Information)
Data Processing Limitations
& Security Safeguards
Domestic Violence Act 116 of
1998 (Protection Orders)
Harassment Act 17 of 2011
SAQA Institutional Alignment
"Personal Information may only be processed for an explicit, explicit, specific and lawful purpose."
NotebookLM

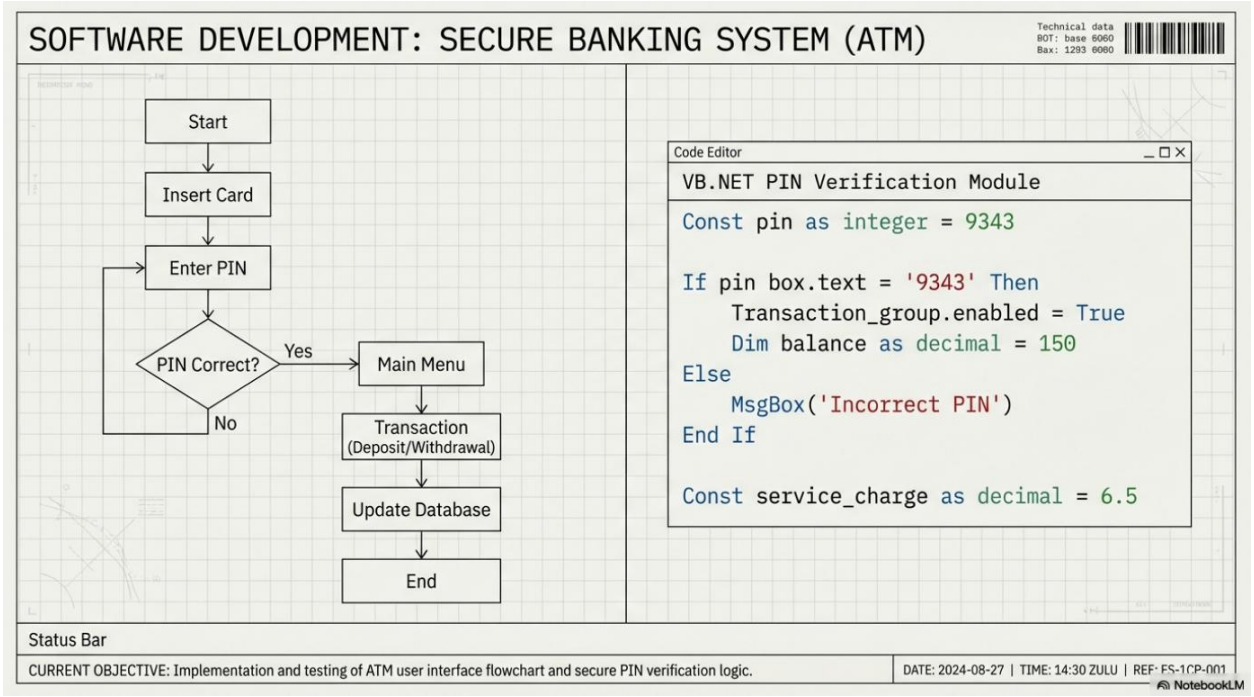

HIGH-SECURITY TECHNICAL DOSSIER
TECHNICAL READOUT AKIRATION
20240515 TER-7001210100F1
Strategic Value Proposition
The Engineer-Developer-Enforcer Triad
ENGINEERING
Hardware, PLC, Power Systems
TSHINGOMBE TSHITADI FISTON
SOFTWARE
VB.NET, Algorithms, Data Systems
SECURITY/LAW
Investigation, Compliance, Enforcement
Capable of designing the system, coding the logic, and enforcing the regulations that protect the infrastructure.
NotebookLM

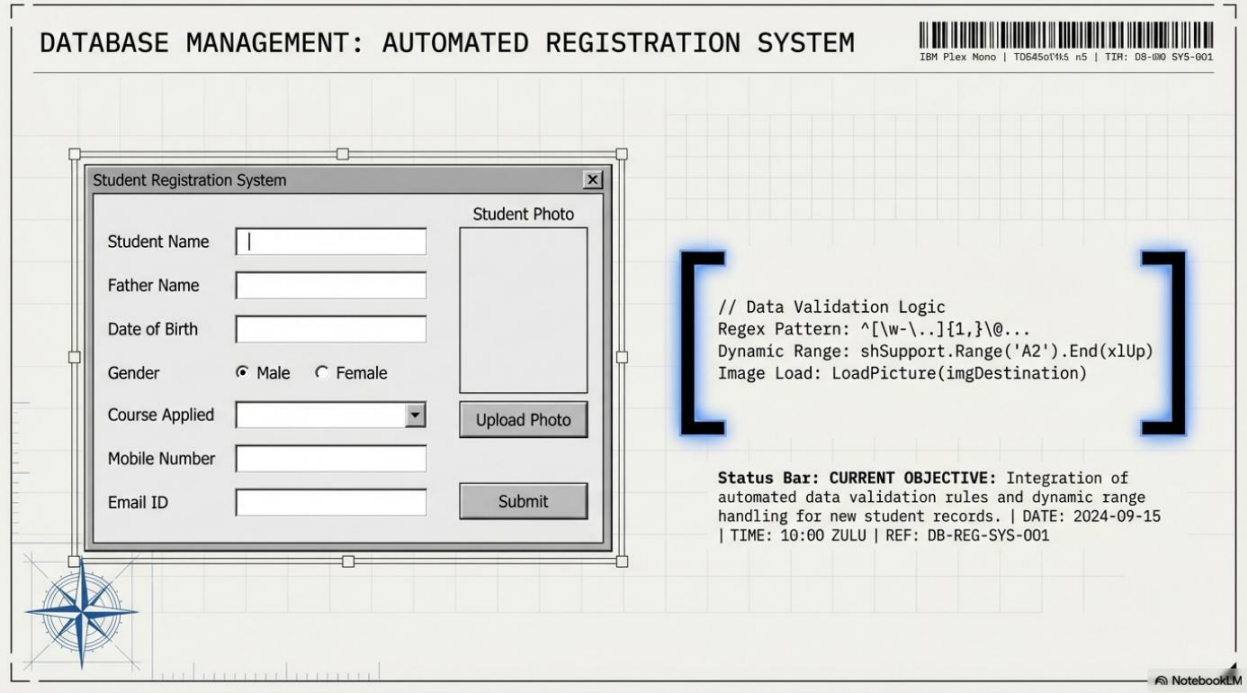

PROFESSIONAL PORTFOLIO & CASE FILE REVIEW
TSHINGOMBE TSHITADI FISTON
ENGINEERING SYSTEMS | SECURITY OPERATIONS | LEGAL PROCEEDINGS
3-PHASE INPUT
DIGITAL METROLOGY
EVIDENCE LOG
SCADA INTERFACE
CLASS 0.5 PRECISION
DIGITAL METROLOGY
CLASS 0.5 PRECISION
VB.NET
Imports System.Data.SqlClient
Imports System.IO.Ports
Public Class MeterInterface
Private _serialPort As SerialPort
Public Sub Connect(portName As String)
_serialPort = New SerialPort(portName, 9600, Parity.None, 8, StopBits.One)
Try
_serialPort.Open()
ProcessLog("Connection Established with Smart Meter")
Catch ex As Exception
ProcessLog("Connection Failed: " & ex.Message)
End Try
End Sub
End Class
FORENSIC BLUEPRINT
DEPARTMENT OF JUSTICE
CASE FILE REVIEW - AUTHORIZED USE ONLY
STATUS: ACTIVE
ID: Tirc000910610
Primary Disciplines: Electrical Design (PLC/SCADA), Software Development (VB.NET), Labour Law Advocacy
Contact: 0725298946 | tshingombefiston@gmail.com
NotebookLM

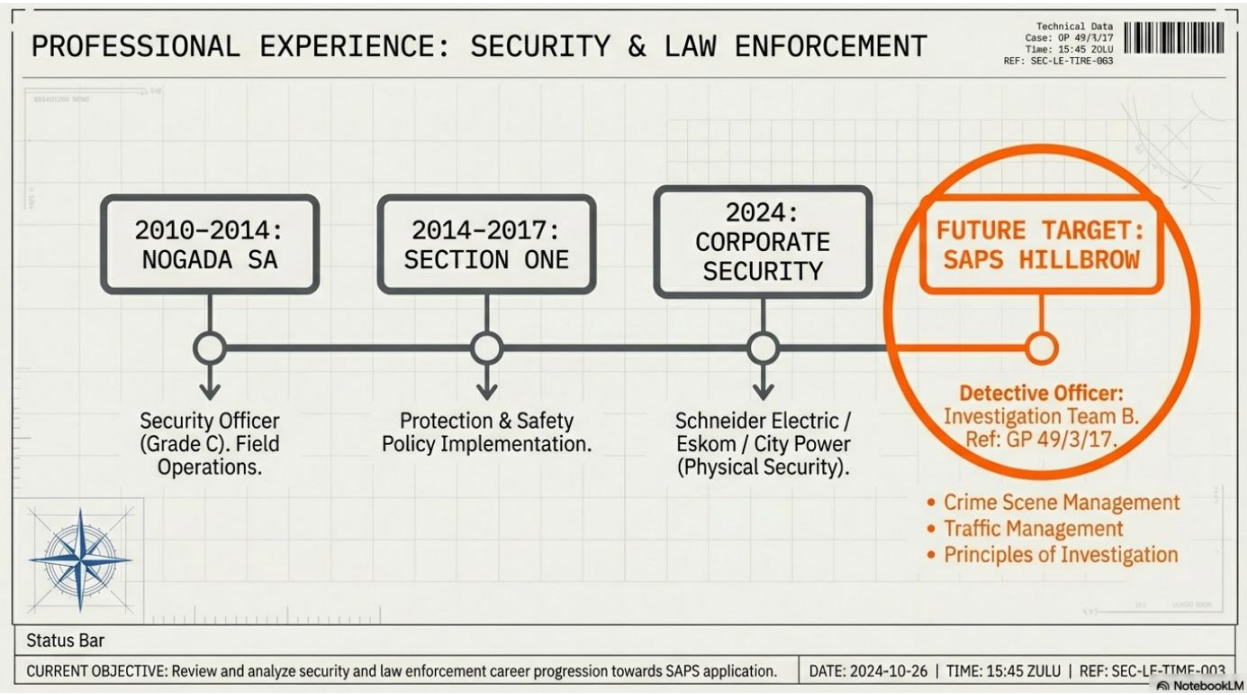

EXECUTIVE SUMMARY: INTEGRATED COMPETENCE PROFILE
TECHNICAL DOSSIER
TD-042-BP-REV-A
ENGINEERING & DEVELOPMENT
SECURITY & POLICING
LEGAL ADVOCACY
Proven capability in electrical systems (MKM35512 Series), PLC programming, and software development including ATM & Student Registration systems.
Over a decade of field experience ranging from Grade C security at Nogada SA to active applications for Detective Services at Hillbrow SAPS.
Self-represented litigant in Labour Appeal Court (Case JA 37/19) demonstrating high-level administrative literacy and tenacity.
Status Bar
CURRENT OBJECTIVE: Regularization of employment status and finalization of administrative appeals (Home Affairs/SAQA) to unlock workforce contribution.
DATE: 2024-08-27 | TIME: 14:30 ZULU
NotebookLM

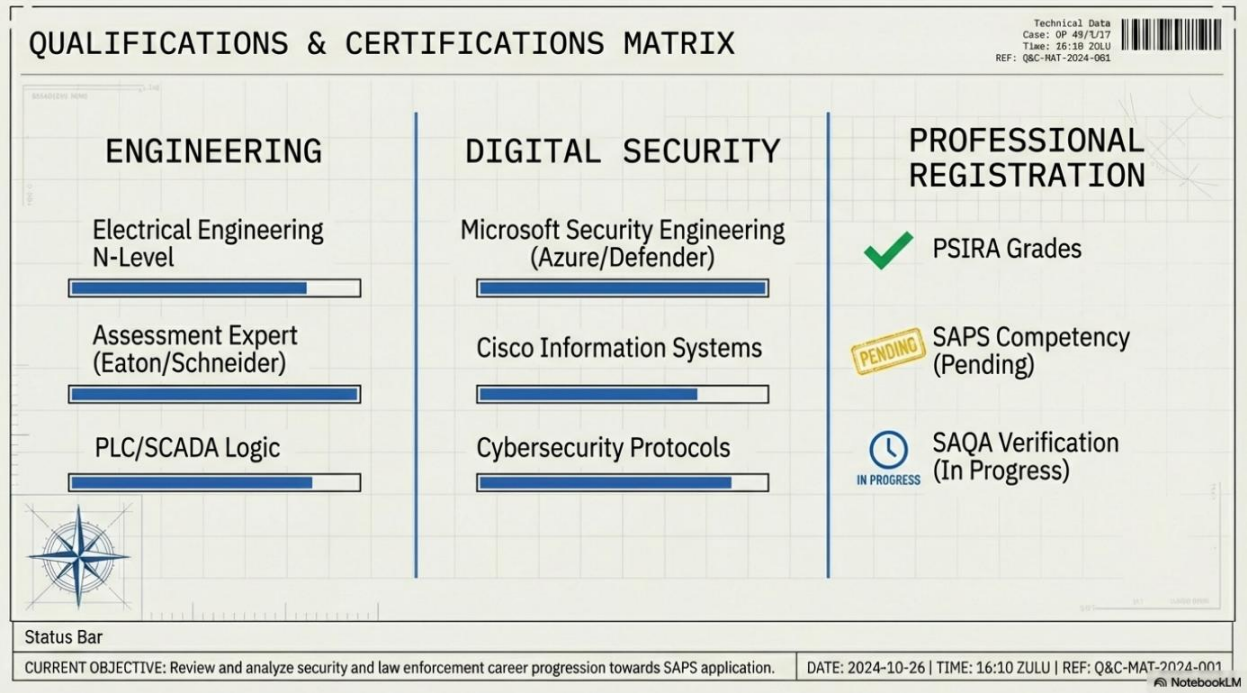

ELECTRICAL DESIGN ARCHITECTURE
TECHNICAL DOSSIER
TD-042-BP-REV-A
MCU Core Unit (EPROM FSW)
GPRS/LGT Module (Sim Card SBT IP6)
Line in
Neutral
Load
Optical RSS
Relay Drivers
LCD Display
Power Supply Unit
MKM35512 Series Smart Meter
SYSTEM SPECIFICATIONS:
- 3-Phase AC Static Watt Hour Smart Meter
- Voltage: 240 VAC +20%
- Frequency: 50Hz +5%
Active Power: $P = \frac{1}{T}\int u \cdot i \, dt$
Reactive Power: $Q = \frac{1}{T}\int u_{-90} \cdot i \, dt$
Status Bar
CURRENT OBJECTIVE: Validation of electrical schematics and power calculation methodologies for regulatory approval.
DATE: 2024-08-27 | TIME: 14:30 ZULU
NotebookLM

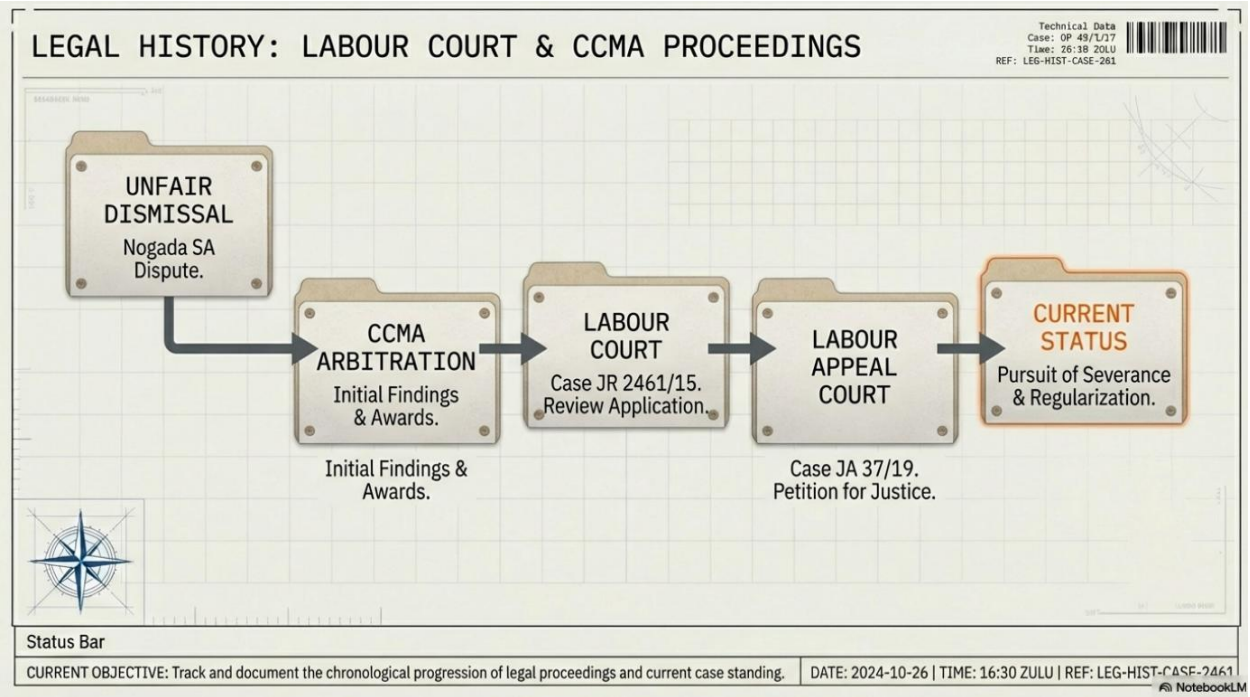

INDUSTRIAL AUTOMATION: PLC & SCADA INTEGRATION
TECHNICAL DOSSIER
TD-042-BP-REV-A
L1
N
START_PB
I:0.0
STOP_PB
I:0.1
MOTOR_RUN
O:0.0
MOTOR_RUN
O:0.0
MOTOR_RUN
O:0.0
OL_TRIP
I:0.2
DISCONNECT
O:0.1
START_PB
I:0.0
OL_TRIP
I:0.2
O:0.0
MOTOR_PB
I:0.5
MOTOR_RUN
O:0.3
O:0.1
NETWORK TOPOLOGY:
- PLC IP: 10.126.224.221
- Gateway: GE D4 SCADA -> Enterprise WAN (Eskom/City Power)
- Controller: TeSys T Motor Management
Read Command: 50000000fff03ff 000018000a0401
Status Bar
CURRENT OBJECTIVE: INTEGRATION AND TESTING OF PLC LADDER LOGIC WITH SCADA SYSTEM FOR OPERATIONAL VERIFICATION.
NotebookLM

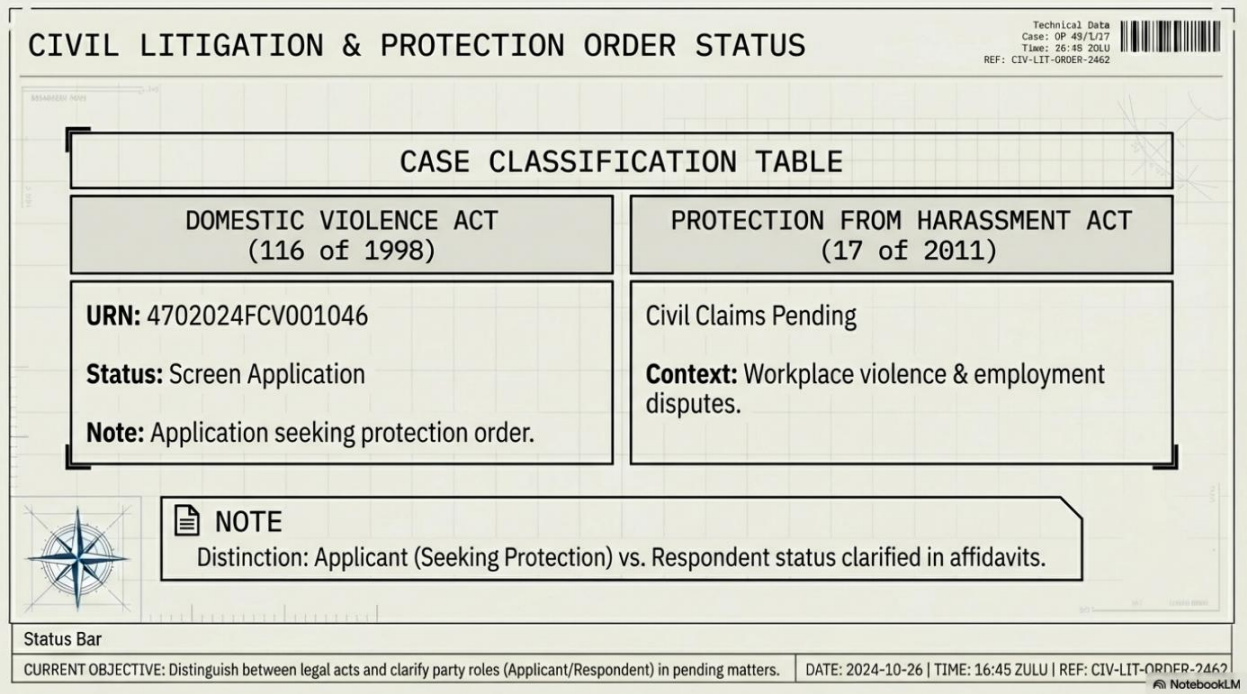

SOFTWARE DEVELOPMENT: SECURE BANKING SYSTEM (ATM)
Start
Insert Card
Enter PIN
PIN Correct?
Yes
No
Main Menu
Transaction (Deposit/Withdrawal)
Update Database
End
Code Editor
VB.NET PIN Verification Module
Const pin as integer = 9343
If pin box.text = '9343' Then
Transaction_group.enabled = True
Dim balance as decimal = 150
Else
MsgBox('Incorrect PIN')
End If
Const service_charge as decimal = 6.5
Status Bar
CURRENT OBJECTIVE: Implementation and testing of ATM user interface flowchart and secure PIN verification logic.
DATE: 2024-08-27 | TIME: 14:30 ZULU
NotebookLM

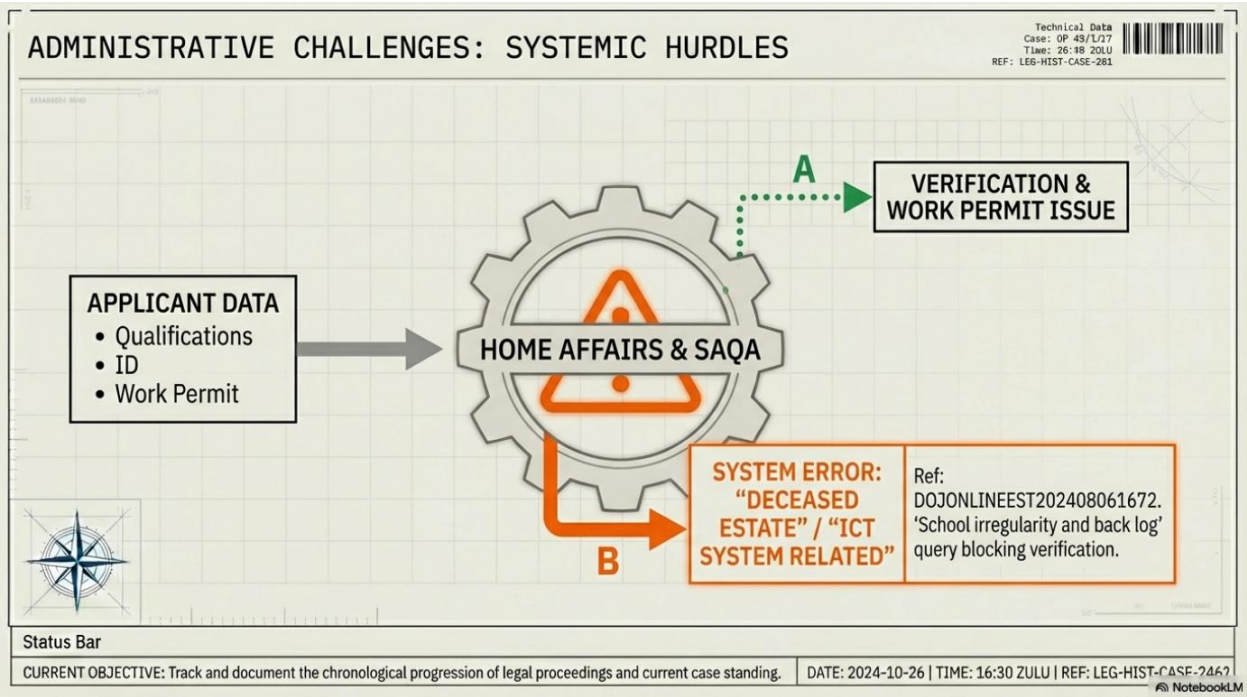

DATABASE MANAGEMENT: AUTOMATED REGISTRATION SYSTEM
Student Registration System
Student Name
Father Name
Date of Birth
Gender
Male
Female
Course Applied
Mobile Number
Email ID
Student Photo
Upload Photo
Submit
// Data Validation Logic
Regex Pattern: ^[\w-\..]{1,}\@...
Dynamic Range: shSupport.Range('A2').End(xlUp)
Image Load: LoadPicture(imgDestination)
Status Bar: CURRENT OBJECTIVE: Integration of automated data validation rules and dynamic range handling for new student records. | DATE: 2024-09-15 | TIME: 10:00 ZULU | REF: DB-REG-SYS-001
NotebookLM

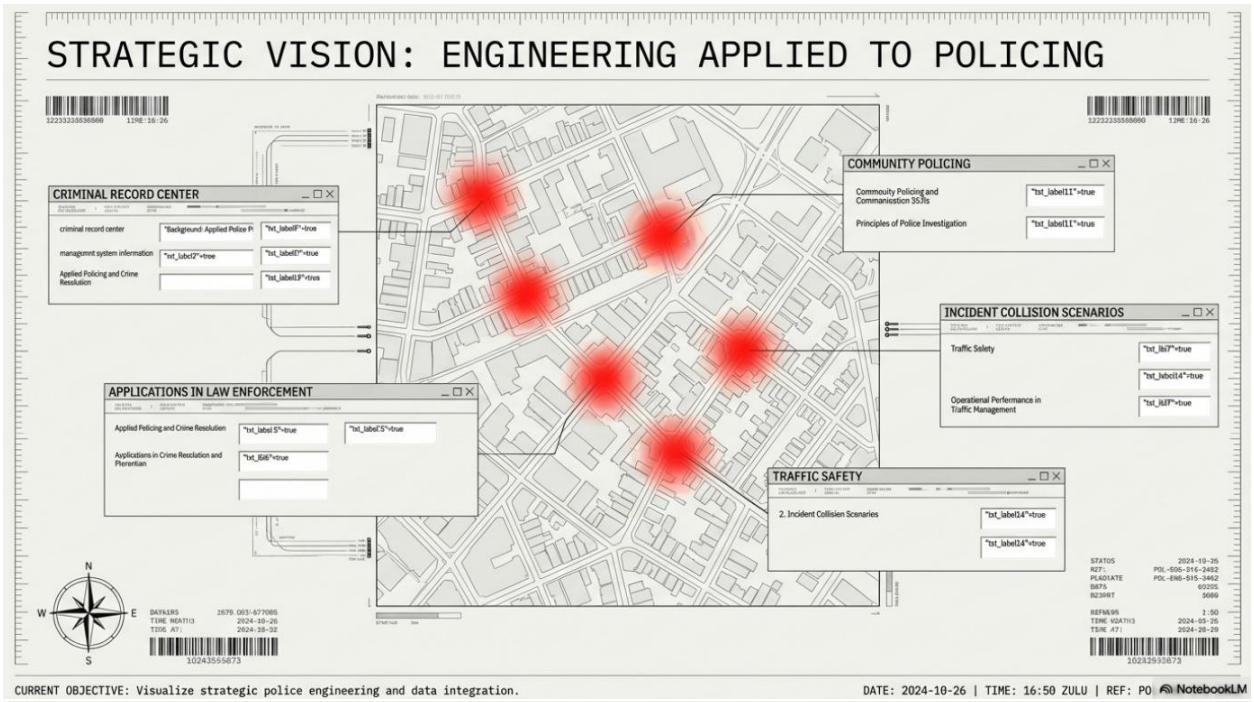

PROFESSIONAL EXPERIENCE: SECURITY & LAW ENFORCEMENT
2010–2014: NOGADA SA
Security Officer (Grade C). Field Operations.
2014–2017: SECTION ONE
Protection & Safety Policy Implementation.
2024: CORPORATE SECURITY
Schneider Electric / Eskom / City Power (Physical Security).
FUTURE TARGET: SAPS HILLBROW
Detective Officer: Investigation Team B. Ref: GP 49/3/17.
• Crime Scene Management
• Traffic Management
• Principles of Investigation
Status Bar
CURRENT OBJECTIVE: Review and analyze security and law enforcement career progression towards SAPS application.
DATE: 2024-10-26 | TIME: 15:45 ZULU | REF: SEC-LE-TIME-003
NotebookLM

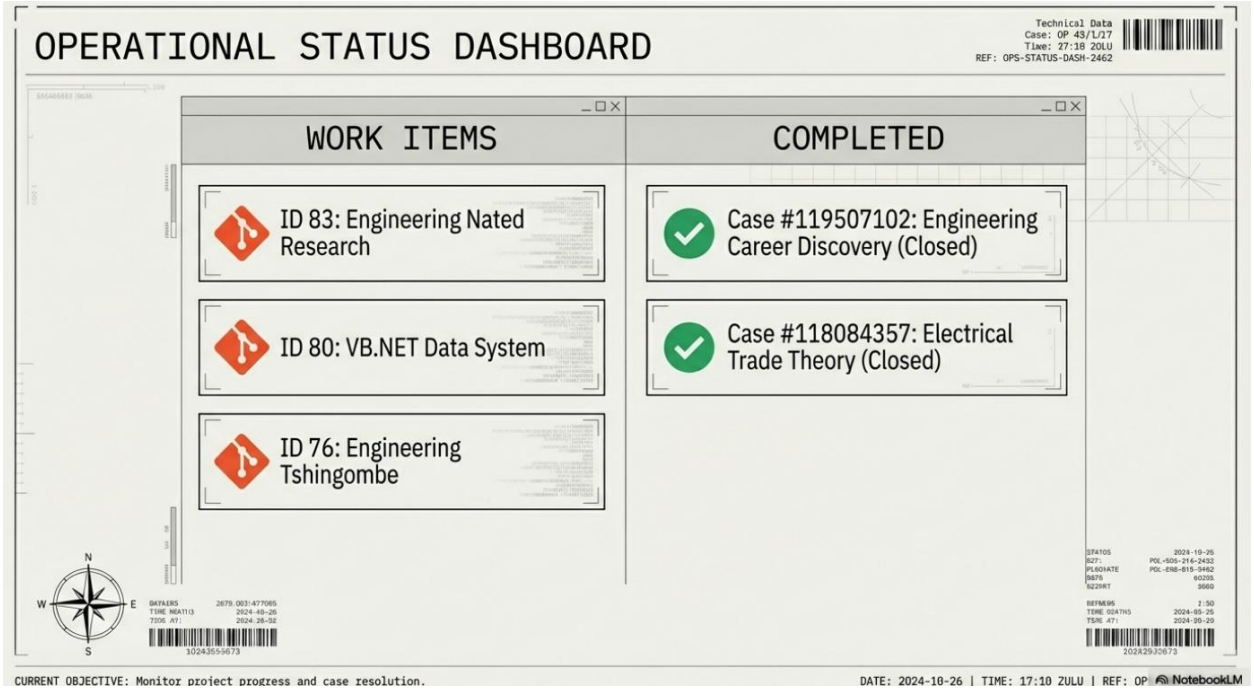

QUALIFICATIONS & CERTIFICATIONS MATRIX
Technical Data
Case: OP 49/1/17
Time: 16:18 ZULU
REF: Q&C-MAT-2024-061
ENGINEERING
Electrical Engineering N-Level
Assessment Expert (Eaton/Schneider)
PLC/SCADA Logic
DIGITAL SECURITY
Microsoft Security Engineering (Azure/Defender)
Cisco Information Systems
Cybersecurity Protocols
PROFESSIONAL REGISTRATION
PSIRA Grades
PENDING
SAPS Competency (Pending)
IN PROGRESS
SAQA Verification (In Progress)
Status Bar
CURRENT OBJECTIVE: Review and analyze security and law enforcement career progression towards SAPS application.
DATE: 2024-10-26 | TIME: 16:10 ZULU | REF: Q&C-MAT-2024-001
NotebookLM

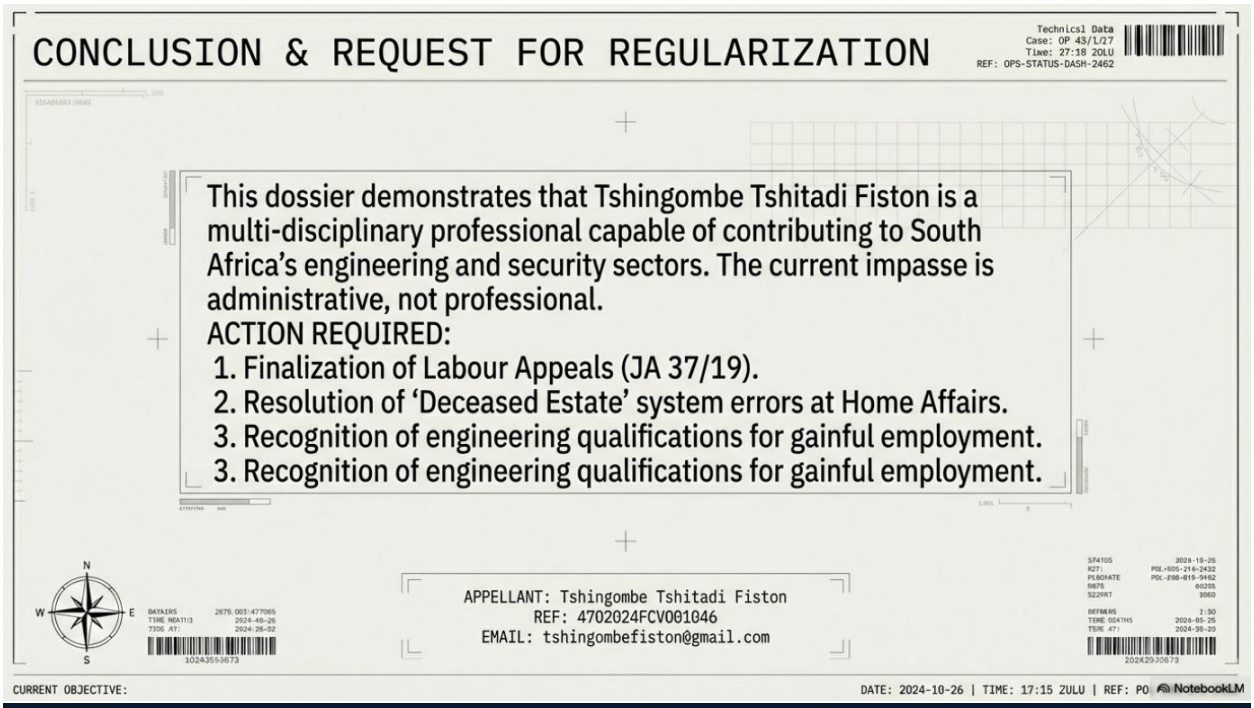

LEGAL HISTORY: LABOUR COURT & CCMA PROCEEDINGS
Technical Data
Case: OP 49/1/17
Time: 16:18 ZULU
REF: LEG-HIST-CASE-261
UNFAIR DISMISSAL
Nogada SA Dispute.
CCMA ARBITRATION
Initial Findings & Awards.
Initial Findings & Awards.
LABOUR COURT
Case JR 2461/15. Review Application.
LABOUR APPEAL COURT
Case JA 37/19. Petition for Justice.
CURRENT STATUS
Pursuit of Severance & Regularization.
Status Bar
CURRENT OBJECTIVE: Track and document the chronological progression of legal proceedings and current case standing.
DATE: 2024-10-26 | TIME: 16:30 ZULU | REF: LEG-HIST-CASE-2461
NotebookLM


CIVIL LITIGATION & PROTECTION ORDER STATUS
Technical Data
Case: OP 49/1/17
Time: 26:45 ZULU
REF: CIV-LIT-ORDER-2462
CASE CLASSIFICATION TABLE
DOMESTIC VIOLENCE ACT (116 of 1998)
PROTECTION FROM HARASSMENT ACT (17 of 2011)
URN: 4702024FCV001046
Status: Screen Application
Note: Application seeking protection order.
Civil Claims Pending
Context: Workplace violence & employment disputes.
NOTE
Distinction: Applicant (Seeking Protection) vs. Respondent status clarified in affidavits.
Status Bar
CURRENT OBJECTIVE: Distinguish between legal acts and clarify party roles (Applicant/Respondent) in pending matters.
DATE: 2024-10-26 | TIME: 16:45 ZULU | REF: CIV-LIT-ORDER-2462
NotebookLM

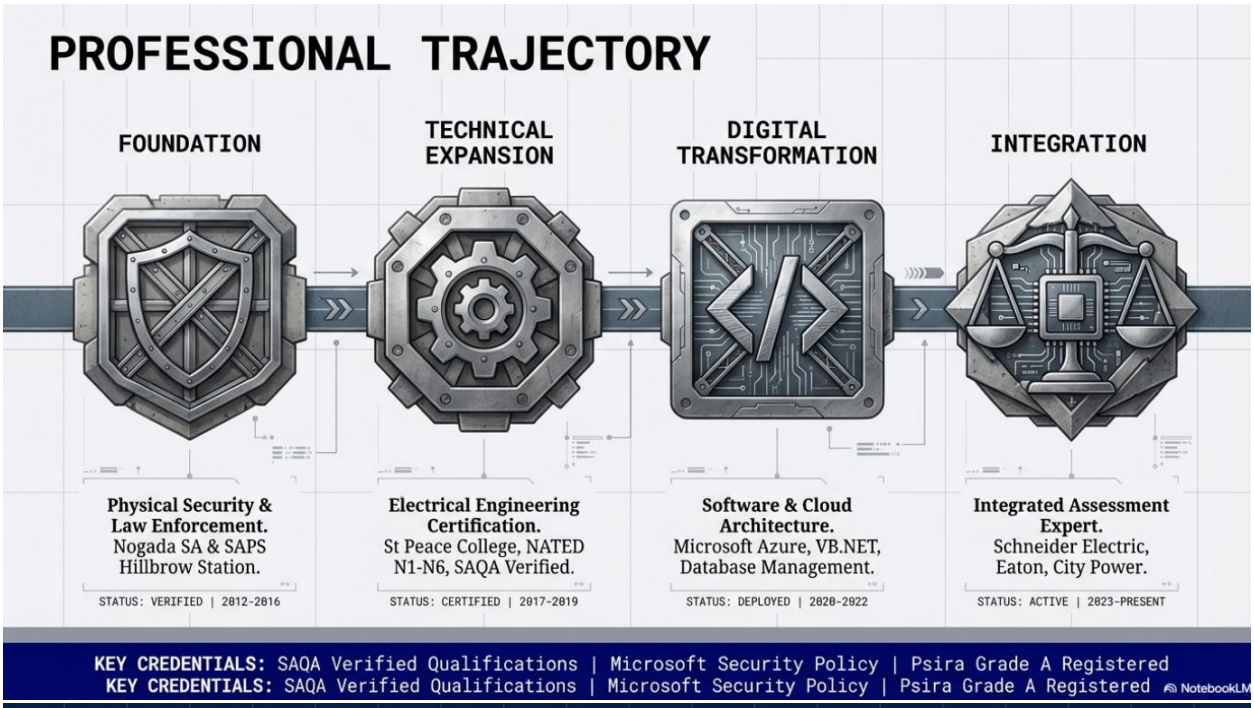

ADMINISTRATIVE CHALLENGES: SYSTEMIC HURDLES
Technical Data
Case: OP 49/1/17
Time: 26:38 ZULU
REF: LEG-HIST-CASE-281
APPLICANT DATA
• Qualifications
• ID
• Work Permit
HOME AFFAIRS & SAQA
A
VERIFICATION & WORK PERMIT ISSUE
B
SYSTEM ERROR: "DECEASED ESTATE" / "ICT SYSTEM RELATED"
Ref: DOJONLINEEST202408061672. 'School irregularity and back log' query blocking verification.
Status Bar
CURRENT OBJECTIVE: Track and document the chronological progression of legal proceedings and current case standing.
DATE: 2024-10-26 | TIME: 16:30 ZULU | REF: LEG-HIST-CASE-2462
NotebookLM

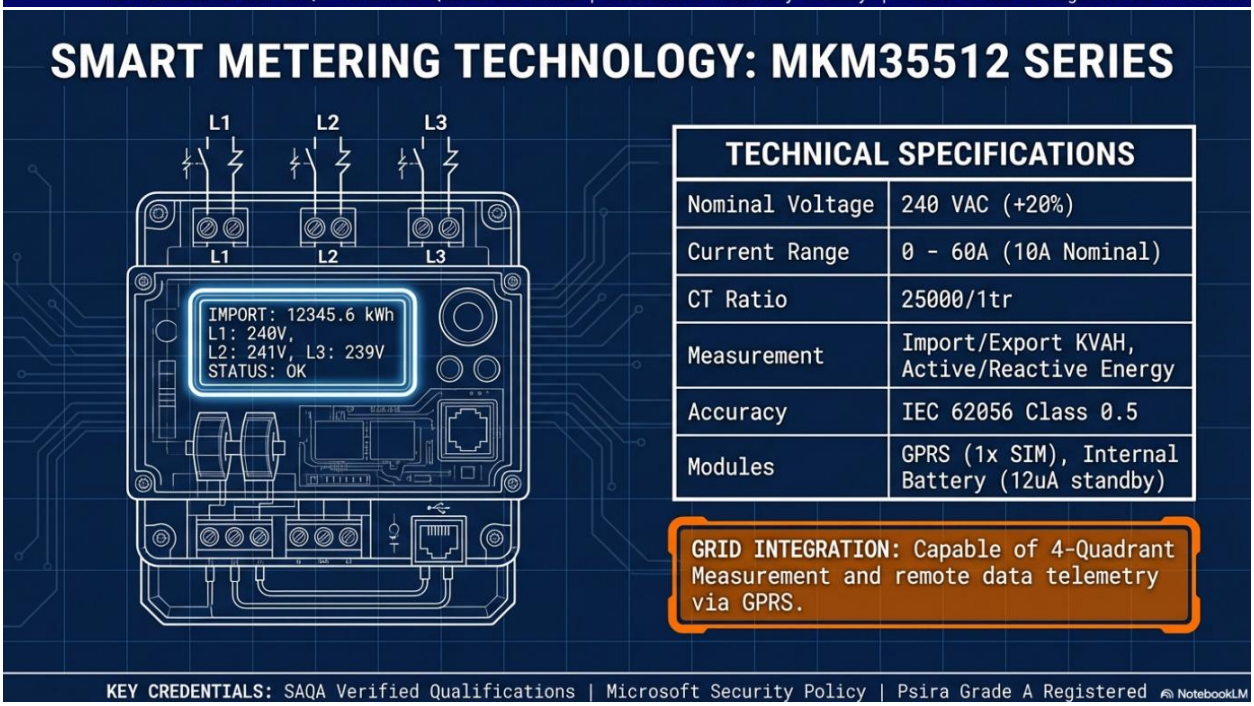

STRATEGIC VISION: ENGINEERING APPLIED TO POLICING
CRIMINAL RECORD CENTER
COMMUNITY POLICING
INCIDENT COLLISION SCENARIOS
APPLICATIONS IN LAW ENFORCEMENT
TRAFFIC SAFETY
CURRENT OBJECTIVE: Visualize strategic police engineering and data integration.
DATE: 2024-10-26 | TIME: 16:50 ZULU | REF: PO
NotebookLM

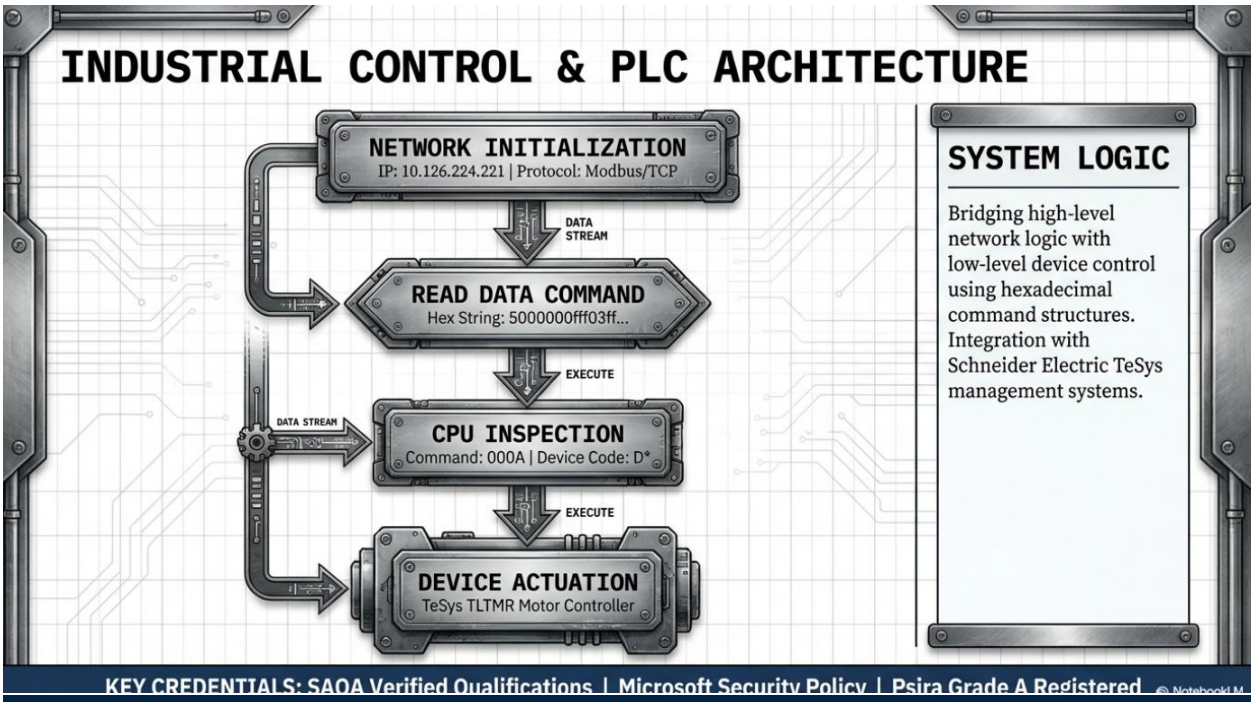

OPERATIONAL STATUS DASHBOARD
Technical Data
Case: OP 43/1/17
Time: 27:18 ZULU
REF: OPS-STATUS-DASH-2462
WORK ITEMS
ID 83: Engineering Nated Research
ID 80: VB.NET Data System
ID 76: Engineering Tshingombe
COMPLETED
Case #119507102: Engineering Career Discovery (Closed)
Case #118084357: Electrical Trade Theory (Closed)
CURRENT OBJECTIVE: Monitor project progress and case resolution.
DATE: 2024-10-26 | TIME: 17:10 ZULU | REF: OP
NotebookLM

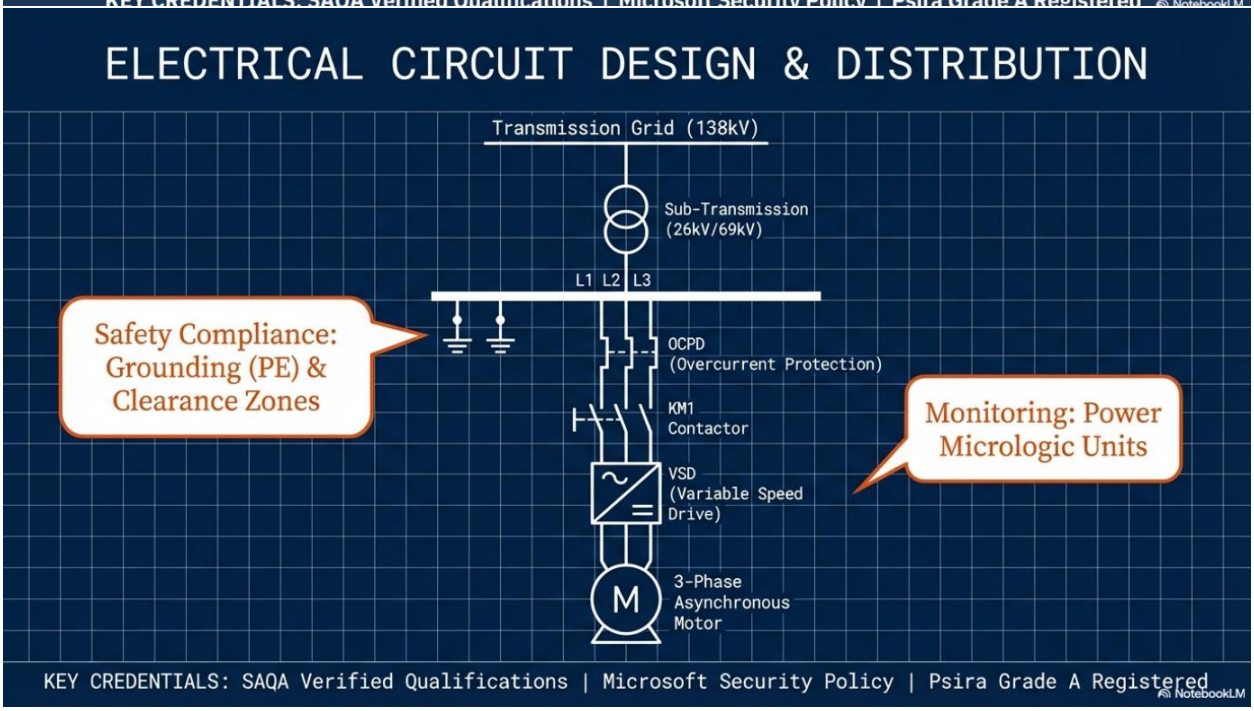

CONCLUSION & REQUEST FOR REGULARIZATION
Technicsl Data
Case: OP 43/L/27
Time: 27:18 ZULU
REF: OPS-STATUS-DASH-2462
This dossier demonstrates that Tshingombe Tshitadi Fiston is a multi-disciplinary professional capable of contributing to South Africa's engineering and security sectors. The current impasse is administrative, not professional.
ACTION REQUIRED:
1. Finalization of Labour Appeals (JA 37/19).
2. Resolution of 'Deceased Estate' system errors at Home Affairs.
3. Recognition of engineering qualifications for gainful employment.
3. Recognition of engineering qualifications for gainful employment.
APPELLANT: Tshingombe Tshitadi Fiston
REF: 4702024FCV001046
EMAIL: tshingombefiston@gmail.com
CURRENT OBJECTIVE:
DATE: 2024-10-26 | TIME: 17:15 ZULU | REF: PO
NotebookLM

Tshingombe Tshitadi Fiston
ENGINEERING ELECTRICAL PORTFOLIO | ASSESSMENT EXPERT | SECURITY SYSTEMS SPECIALIST
CORE COMPETENCIES
Electrical Engineering (NATED/SAQA Certified)
Software Development (VB.NET, SQL, Azure DevOps)
Security Operations (SAPS/Psira Frameworks)
Legal & Regulatory Compliance (CCMA, POPIA)
NotebookLM

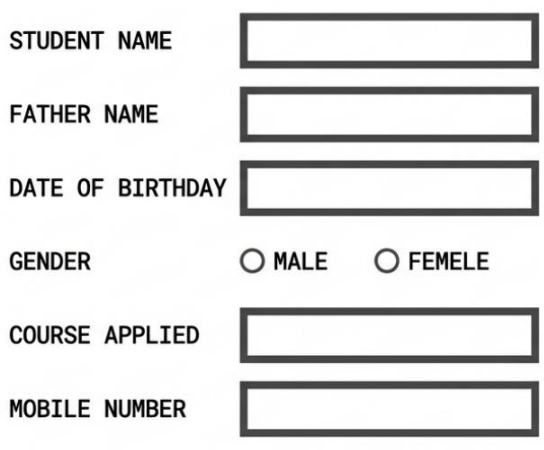

PROFESSIONAL TRAJECTORY
FOUNDATION
TECHNICAL EXPANSION
DIGITAL TRANSFORMATION
INTEGRATION
Physical Security & Law Enforcement.
Nogada SA & SAPS Hillbrow Station.
STATUS: VERIFIED | 2012-2016
Electrical Engineering Certification.
St Peace College, NATED N1-N6, SAQA Verified.
STATUS: CERTIFIED | 2017-2019
Software & Cloud Architecture.
Microsoft Azure, VB.NET, Database Management.
STATUS: DEPLOYED | 2020-2022
Integrated Assessment Expert.
Schneider Electric, Eaton, City Power.
STATUS: ACTIVE | 2023-PRESENT
KEY CREDENTIALS: SAQA Verified Qualifications | Microsoft Security Policy | Psira Grade A Registered
KEY CREDENTIALS: SAQA Verified Qualifications | Microsoft Security Policy | Psira Grade A Registered
NotebookLM


SMART METERING TECHNOLOGY: MKM35512 SERIES
L1
L2
L3
L1
L2
L3
IMPORT: 12345.6 kWh
L1: 240V,
L2: 241V, L3: 239V
STATUS: OK
TECHNICAL SPECIFICATIONS
Nominal Voltage
240 VAC (+20%)
Current Range
0 - 60A (10A Nominal)
CT Ratio
25000/1tr
Measurement
Import/Export KVAH, Active/Reactive Energy
Accuracy
IEC 62056 Class 0.5
Modules
GPRS (1x SIM), Internal Battery (12uA standby)
GRID INTEGRATION: Capable of 4-Quadrant Measurement and remote data telemetry via GPRS.
KEY CREDENTIALS: SAQA Verified Qualifications | Microsoft Security Policy | Psira Grade A Registered
NotebookLM


INDUSTRIAL CONTROL & PLC ARCHITECTURE
NETWORK INITIALIZATION
IP: 10.126.224.221 | Protocol: Modbus/TCP
DATA STREAM
READ DATA COMMAND
Hex String: 5000000fff03ff...
EXECUTE
DATA STREAM
CPU INSPECTION
Command: 000A | Device Code: D*
EXECUTE
DEVICE ACTUATION
TeSys TLTMR Motor Controller
SYSTEM LOGIC
Bridging high-level network logic with low-level device control using hexadecimal command structures. Integration with Schneider Electric TeSys management systems.
KEY CREDENTIALS: SAQA Verified Qualifications | Microsoft Security Policy | Psira Grade A Registered


ELECTRICAL CIRCUIT DESIGN & DISTRIBUTION
Transmission Grid (138kV)
Sub-Transmission (26kV/69kV)
L1 L2 L3
Safety Compliance: Grounding (PE) & Clearance Zones
OCPD (Overcurrent Protection)
KM1 Contactor
VSD (Variable Speed Drive)
Monitoring: Power Micrologic Units
M
3-Phase Asynchronous Motor
KEY CREDENTIALS: SAQA Verified Qualifications | Microsoft Security Policy | Psira Grade A Registered

SOFTWARE ENGINEERING: AUTOMATED INFORMATION SYSTEMS



BACKEND LOGIC (VBA/SQL)

```
Function ValidEntry() As Boolean
  ' Regex for Email Validation
  .Pattern = "^[\w-\.]...@..."

  ' Date Format Enforcement
  Me.txtDOB.Value = Format(sDate, "dd-mmm-yyyy")

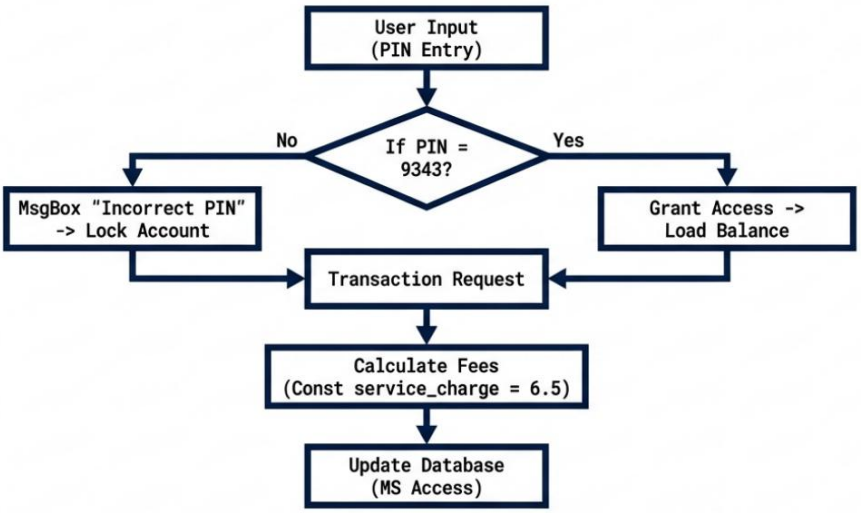
  ' Data Integrity Check
  If StudentName = Empty Then MsgBox "Error"
End Function
```

Full-stack implementation: From User Interface (Forms) to Database Logic (SQL/Excel).

KEY CREDENTIALS: SAQA Verified Qualifications | Microsoft Security Policy | Psira Grade A Regis

SECURE TRANSACTION LOGIC: ATM SIMULATION

TRANSACTION PROCESSING CYCLE



KEY SECURITY CONSTANTS

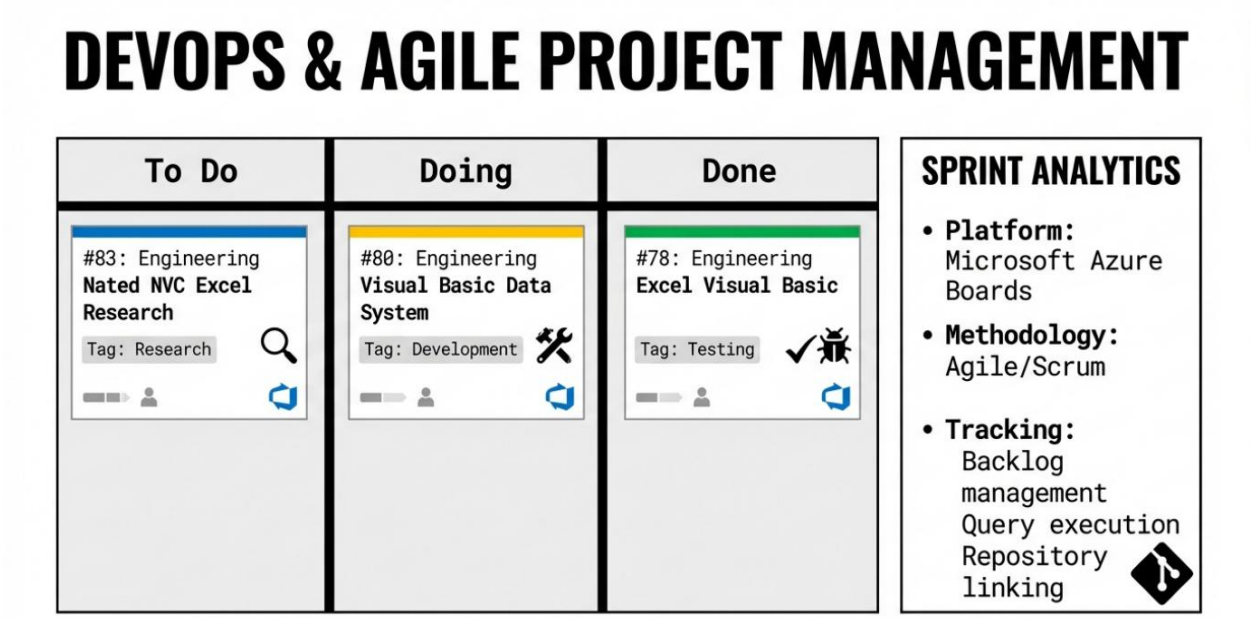
```
Const pin As Integer
= 9343

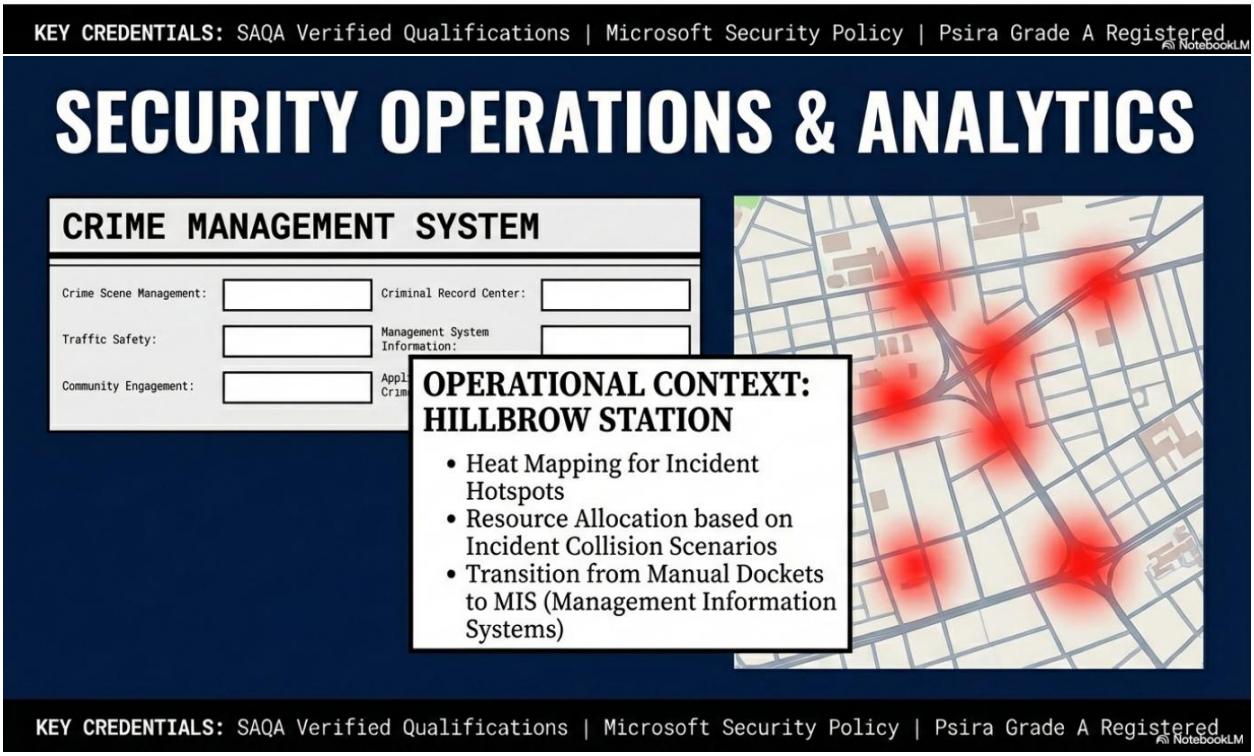
Const service_charge
As Decimal = 6.5
```

OBJECT-ORIENTED LOGIC

Encapsulation of security constraints.

KEY CREDENTIALS: SAQA Verified Qualifications | Microsoft Security Policy | Psira Grade A Registe


DEVOPS & AGILE PROJECT MANAGEMENT
To Do
Doing
Done
#83: Engineering
Nated NVC Excel Research
Tag: Research
#80: Engineering
Visual Basic Data System
Tag: Development
#78: Engineering
Excel Visual Basic
Tag: Testing
SPRINT ANALYTICS
• Platform: Microsoft Azure Boards
• Methodology: Agile/Scrum
• Tracking: Backlog management Query execution Repository linking


KEY CREDENTIALS: SAQA Verified Qualifications | Microsoft Security Policy | Psira Grade A Registered
SECURITY OPERATIONS & ANALYTICS
CRIME MANAGEMENT SYSTEM
Crime Scene Management:
Criminal Record Center:
Traffic Safety:
Management System Information:
Community Engagement:
OPERATIONAL CONTEXT: HILLBROW STATION
• Heat Mapping for Incident Hotspots
• Resource Allocation based on Incident Collision Scenarios
• Transition from Manual Dockets to MIS (Management Information Systems)
KEY CREDENTIALS: SAQA Verified Qualifications | Microsoft Security Policy | Psira Grade A Registered

LEGAL FRAMEWORKS & LITIGATION MANAGEMENT

CASE MANAGEMENT EXPERIENCE

- **Tribunal:** CCMA & Labour Courts
- **Case Ref:** JR 2461/15 (Rescission Ruling)
- **Case Ref:** JA 37/19 (Review Application)

COMPETENCIES

Drafting & Filing

- Notices of Motion
- Founding Affidavits
- Heads of Argument

Procedural Law

- Reviews
- Rescission rulings
- Filing of Records

Regulatory Knowledge

- Labour Relations Act (LRA)
- Domestic Violence Act

KEY CREDENTIALS: SAQA Verified Qualifications | Microsoft Security Policy | Psira Grade A Regis

NotebookLM

REGULATORY COMPLIANCE: POPIA & DATA PRIVACY

DATA SUBJECT RIGHTS

- Access, Correction,
- Objection

EMPLOYER OBLIGATIONS

- Info Officers,
- Security Safeguards

LAWFUL PROCESSING

- Consent,
- Justification,
- Purpose

RISK MANAGEMENT

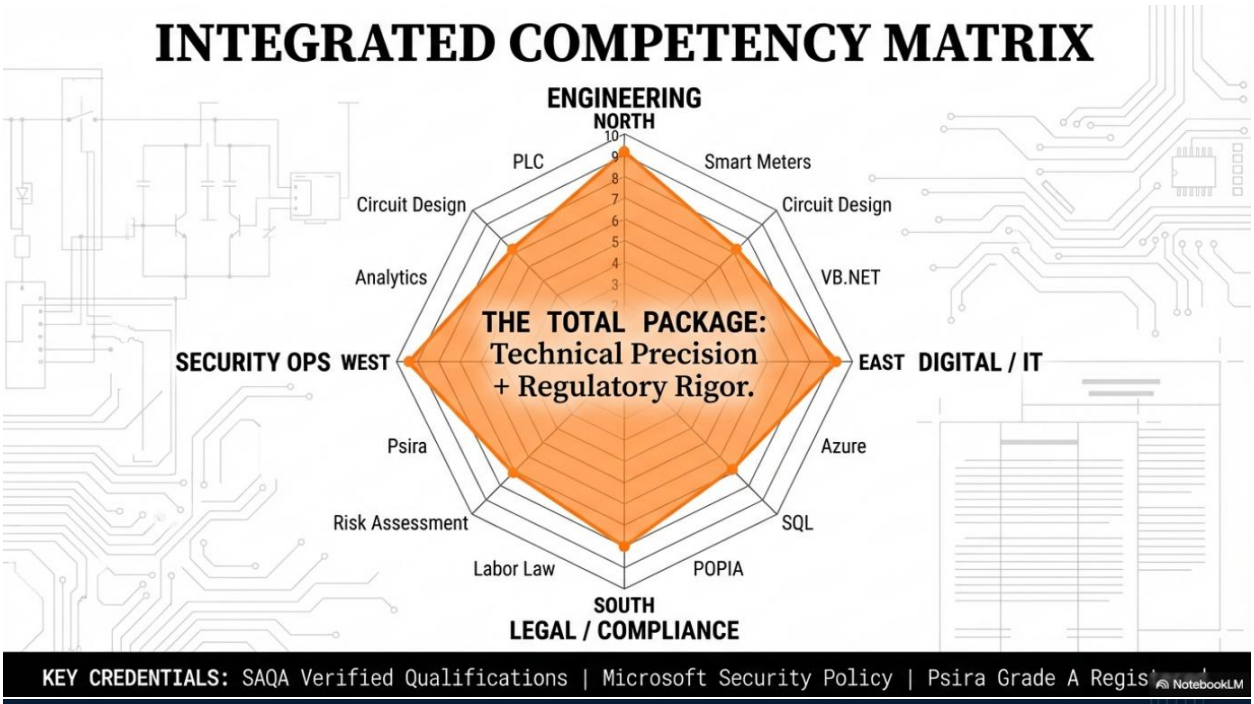
- Fines R1m-R10m,
- Imprisonment

SYSTEMS INTEGRATION

Application of legal privacy constraints to software architecture and employee data management.

KEY CREDENTIALS: SAQA Verified Qualifications | Microsoft Security Policy | Psira Grade A Registere

NotebookLM


INTEGRATED COMPETENCY MATRIX
ENGINEERING
NORTH
PLC
Smart Meters
Circuit Design
Circuit Design
Analytics
VB.NET
SECURITY OPS
WEST
EAST
DIGITAL / IT
Psira
Azure
Risk Assessment
SQL
Labor Law
POPIA
SOUTH
LEGAL / COMPLIANCE
THE TOTAL PACKAGE:
Technical Precision
+ Regulatory Rigor.
KEY CREDENTIALS: SAQA Verified Qualifications | Microsoft Security Policy | Psira Grade A Regis
NotebookLM

TSHINGOMBE TSHITADI FISTON
READY FOR DEPLOYMENT
072 529 8946
tshingombefiston@gmail.com
Johannesburg / Gauteng
ENGINEERING | SECURITY | COMPLIANCE
KEY CREDENTIALS: SAQA Verified Qualifications | Microsoft Security Policy | Psira Grade A Regis
NotebookLM

Integrated Systems Architecture: Engineering, Compliance, & Security

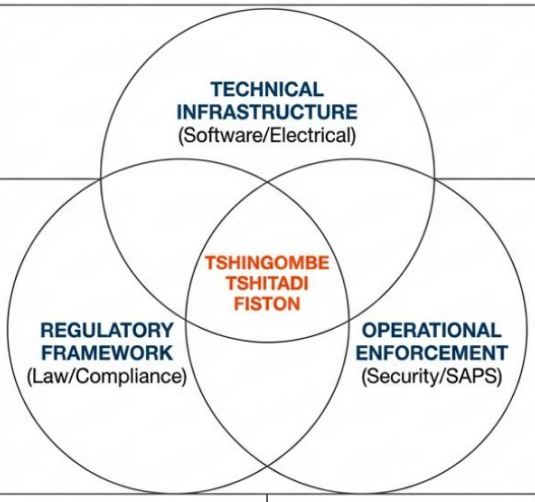
A Multi-Disciplinary Portfolio based on the Technical & Legal Dossier of Tshingombe Tshitadi Fiston.

Systems Design

VB.NET, PLC Automation, Smart Grid Metering.

Legal Strategy

Labour Court Litigation, POPIA Compliance, POPIA Compliance, Civil Procedure Acts.



Public Safety

Crime Management MIS, Crime Management MIS, Sector Policing Protocols.

NotebookLM

The Convergence of Code, Current, and Compliance

Modern infrastructure requires professionals who can build the system, power the system, and legally defend the system.

This portfolio demonstrates proficiency across the full lifecycle of critical infrastructure protection.

Automation & Logic

From developing Virtual ATM algorithms in Visual Basic to programming Industrial PLCs.

Power Infrastructure

Designing Three-Phase Smart Meters and managing **10.126.224.221** Distribution. **138kV to 4kV**

Legal Rigor

Navigating the Labour Appeal Court and enforcing POPIA data privacy standards. **Case JA 37/19**

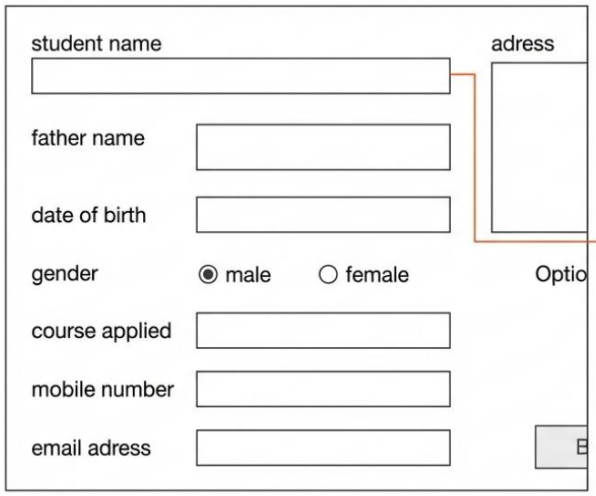
Field Operations

Applying technical and legal skills within South African Police Service (SAPS) and PSIRA regulations.

NotebookLM

Software Engineering: Administrative Data Systems

Project: Automated Student Registration System (Excel VBA & UserForms)



Code Logic

Interface: Custom UserForm (**frmDataEntry**)

Validation Logic:

```
If Trim(.txtStudentName.Value) = ""
Then MsgBox "Please enter Student's
name."
```

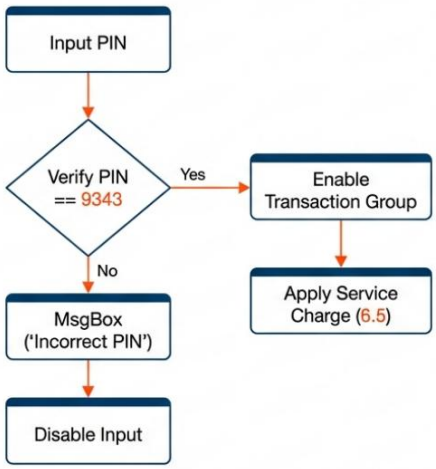
Database Integration:

```
iRow = shDatabase.Range("A" &
Rows.Count).End(xlUp).row + 1
```

NotebookLM

Financial Algorithm Design: The Virtual ATM Project

Core Language: Visual Basic .NET



System Constants

```
Const pin as integer = 9343
Const service_charge as decimal = 6.5
pin_box.enable = false
```

Key Takeaway

Demonstrates translation of strict financial rules into executable, secure code.

NotebookLM

Public Safety Solutions: Web-Based Crime Management System

Case Study: Samara City Main Police Station Pilot

Digital Dashboard

- Criminal Record Center
- Applied Policing and Crime Resolution
- Management System Information
- Community Policing & Communication Skills
- Traffic Safety
- Principles of Police Investigation

Applications in Law Enforcement

- Study Material for Police Firearms

Applications in Crime Resolution and Prevention

- 1. Crime Prevention:

2. Incident Collision Scenarios

- Traffic Safety

- Research Methods for Conducting Patrols
- Community Engagement

System Features

- Citizen Interface: Online reporting capability.
- Data Analysis: Transition from paper files to searchable MIS databases.
- Objective: Heat-mapping crime hotspots for patrol allocation.

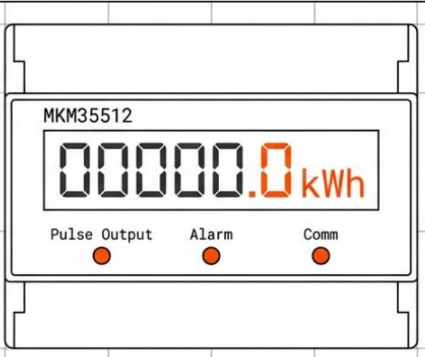
NotebookLM

Electrical Engineering: Three-Phase Smart Metering Design

System: Series MKM35512 Smart Meter

Specifications List

- Processing: MCU with 32-bit ADC
- Communication: GPRS / Optical RSS modules
- Telemetry: UART to Driver Interface
- Security: Magnetic Tamper Detection & Cover Open Switches
- Clock: Independent RTC (Real Time Clock)



Theoretical Foundation

$$\text{Active Power } (P) = \frac{1}{T}\int u(t) \cdot i(t)\, dt$$

$$\text{Reactive Power } (Q) = \frac{1}{T}\int u(t\text{-}90^\circ) \cdot i(t)\, dt$$

NotebookLM

Industrial Automation & PLC Integration

Control Architecture: Programmable Logic Controller Network

Input Sensors → **PLC CPU Processing** → Actuators (TeSys T Motor Management)

PLC CPU Processing

`IP: 10.126.224.221`

`READ: Cmd + 0401`
`WRITE: Cmd + 1401`

Motor Control Specs

- Protection: Thermal Overload
- Phase Imbalance: Max 3% deviation
- Drives: VSD (Variable Speed Drives)
- HEX Command: `5000000fff03ff…`

NotebookLM

Critical Infrastructure: Power Distribution Hierarchy

System: Grid Resiliency and Power Flow

GENERATION (Power Stations)

TRANSMISSION (138kV)

SUB-TRANSMISSION (26kV / 69kV)

DISTRIBUTION (Primary 13kV/4kV)

Resilience Systems

- Backup: UPS & Battery Connect for Critical Load.
- Switching: Automatic Transfer Switches (ATS).
- Protocol: Normal Source <-> Emergency Power Supply.

NotebookLM

Regulatory Compliance: Data Privacy (POPIA)

Framework: The Protection of Personal Information Act

Employer Obligations

- Appoint Information Officers.
- Register with the Regulator.
- Ensure Lawful Processing (Consent, Purpose).

Security Measures

- Mandatory Firewalls & Encryption.
- Prevent Data Breaches.
- Reference: Engineering Security Modules (Slides 3-5).

Impact & Penalties

- Fines: **R1m - R10m**.
- Imprisonment: **1-10 Years.**
- Requires rigorous database validation logic.

CONFIDENTIAL TECHNICAL DOCUMENTATION

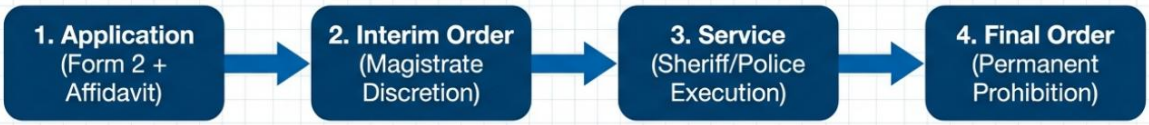
DATE: OCTOBER 2(NotebookLM

Civil Procedure: Protection Orders & Safety Mechanisms

Legislative Distinction

Domestic Violence Act (116 of 1998)	Protection from Harassment Act (17 of 2011)
Applies to domestic relationships, shared residence.	Applies to non-domestic stalking, digital harassment.

Procedural Workflow


1. Application (Form 2 + Affidavit)
2. Interim Order (Magistrate Discretion)
3. Service (Sheriff/Police Execution)
4. Final Order (Permanent Prohibition)

Breach of order = Contempt of Court (Criminal Charge).

NotebookLM

Operational Policing: SAPS & Security Protocols

Station Context: Hillbrow Station, Gauteng

Detective Service

- Focus: Economic Crimes (Investigation Team B).
- Duties: Docket management, CAS (Crime Administration System) data integrity.

Sector Policing

- Focus: Crime Prevention & Combatting.
- Duties: Shift coordination, resource allocation, trend analysis.

Recruitment & Vetting Standards

- Criminal Law (Sexual Offences) Amendment Act, 2007.
- High integrity required for access to Crime Management Systems.

CONFIDENTIAL TECHNICAL DOCUMENTATION

DATE: OCTOBER 2(

NotebookLM

Litigation History & Case Management

Active Legal Engagement Record

1 **Court: Labour Appeal Court**
Case Number: JA 37/19 & JR 2461/15
Parties: Tshingombe vs. Dept of Labour / Elizabeth Lerumu
Subject: CCMA reviews, Rescission rulings.

2 **Court: Civil Magistrate**
Case Number: 4702024FCV001046
Subject: Civil Procedure / Protection Order Applications.

3 **Demonstrated Skills:**
Drafting Notices of Motion, Founding Affidavits, Managing court records via DOJ Online.

CONFIDENTIAL TECHNICAL DOCUMENTATION

DATE: OCTOBER 26, 2

NotebookLM

Professional Development & Certification

Engineering & Technology

Microsoft: Azure Security & Systems Engineering (Senior Research)

Schneider Electric: Assessment Expert (Cases #118084357, #119507102)

St Peace College: Electrical Certificate & Nated Engineering Studies

Security & Law

PSIRA: Private Security Industry Regulatory Authority (Grade A/B)

Met Police UK: Online Recruitment Training Modules

CONFIDENTIAL TECHNICAL DOCUMENTATION

DATE: OCTOBER 26, 2024

NotebookLM

Conclusion: The Integrated Security Professional

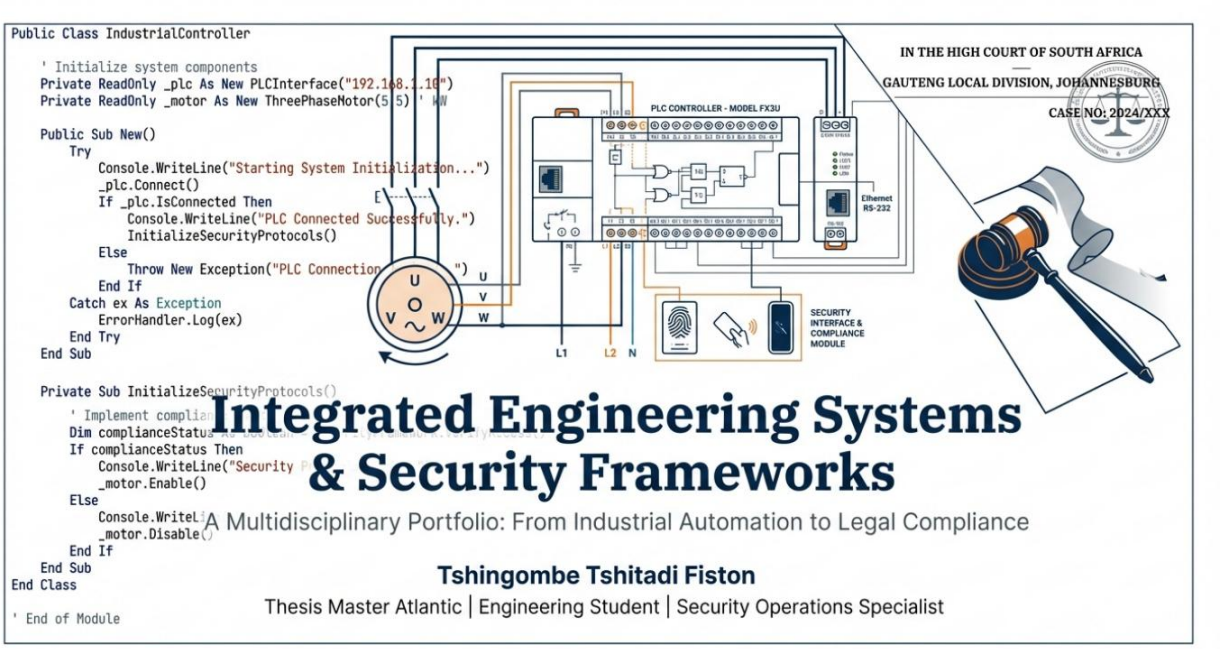
Innovation grounded in Law, Safety, and Engineering Precision.

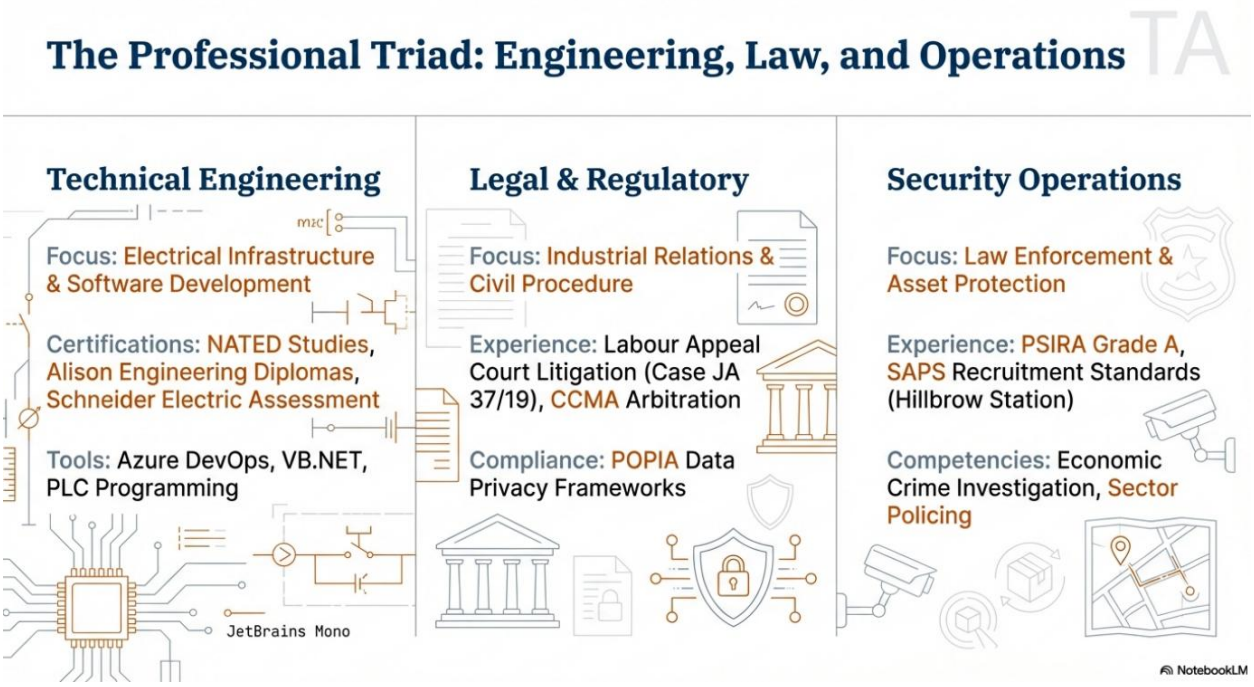
BUILD:	Secure power and data infrastructures.
CODE:	Automated financial and administrative logic.
COMPLY:	POPIA and Labour Law adherence.
ENFORCE:	Statutory powers through Policing channels.

CONFIDENTIAL TECHNICAL DOCUMENTATION

DATE: OCTOBER 26, 2024

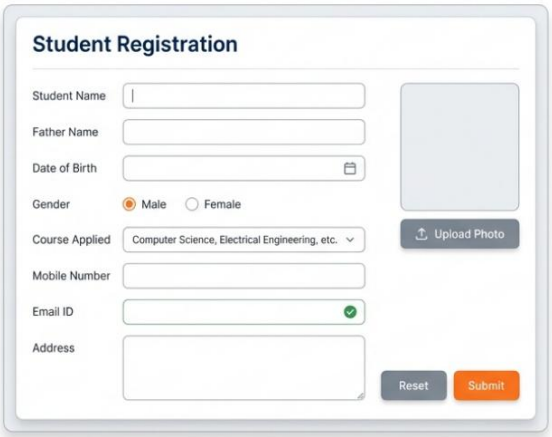
NotebookLM


Public Class IndustrialController
' Initialize system components
Private ReadOnly _plc As New PLCInterface("192.168.1.10")
Private ReadOnly _motor As New ThreePhaseMotor(5.5) ' kW
Public Sub New()
Try
Console.WriteLine("Starting System Initialization...")
_plc.Connect()
If _plc.IsConnected Then
Console.WriteLine("PLC Connected Successfully.")
InitializeSecurityProtocols()
Else
Throw New Exception("PLC Connection
End If
Catch ex As Exception
ErrorHandler.Log(ex)
End Try
End Sub
Private Sub InitializeSecurityProtocols()
' Implement compli
Dim complianceStatus
If complianceStatus Then
Console.WriteLine("Security
_motor.Enable()
Else
Console.WriteLi
_motor.Disable()
End If
End Sub
End Class
' End of Module
PLC CONTROLLER - MODEL FX3U
Ethernet
RS-232
SECURITY
INTERFACE &
COMPLIANCE
MODULE
U
V
W
L1
L2
N
IN THE HIGH COURT OF SOUTH AFRICA
GAUTENG LOCAL DIVISION, JOHANNESBURG
CASE NO: 2024/XXX
Integrated Engineering Systems
& Security Frameworks
A Multidisciplinary Portfolio: From Industrial Automation to Legal Compliance
Tshingombe Tshitadi Fiston
Thesis Master Atlantic | Engineering Student | Security Operations Specialist
tshingombefiston@gmail.com | Location: Johannesburg / Hillbrow Operations
NotebookLM


The Professional Triad: Engineering, Law, and Operations
Technical Engineering
Focus: Electrical Infrastructure & Software Development
Certifications: NATED Studies, Alison Engineering Diplomas, Schneider Electric Assessment
Tools: Azure DevOps, VB.NET, PLC Programming
JetBrains Mono
Legal & Regulatory
Focus: Industrial Relations & Civil Procedure
Experience: Labour Appeal Court Litigation (Case JA 37/19), CCMA Arbitration
Compliance: POPIA Data Privacy Frameworks
Security Operations
Focus: Law Enforcement & Asset Protection
Experience: PSIRA Grade A, SAPS Recruitment Standards (Hillbrow Station)
Competencies: Economic Crime Investigation, Sector Policing
NotebookLM

Application Development: Automated Student Registration System

Tech Stack: VBA, MS Excel, Regular Expressions (RegEx)




```
// Email Validation Logic
Set oRegEx = CreateObject('VBScript.RegExp')
.Pattern = '^[\w-\\.]{1,}\@...'

// Data Submission Logic
With shDatabase.Range('A' & iRow)
    .Offset(0, 1).Value = frmDataEntry.txtStudentName.Value
    .Offset(0, 5).Value = frmDataEntry.cmbCourse.Value
End With
```

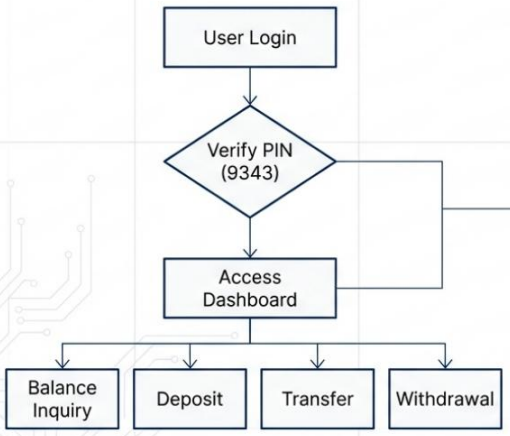
NotebookLM

Technical Editorial

High-Fidelity Engineering Schematics

Financial Software Logic: ATM Banking Simulation

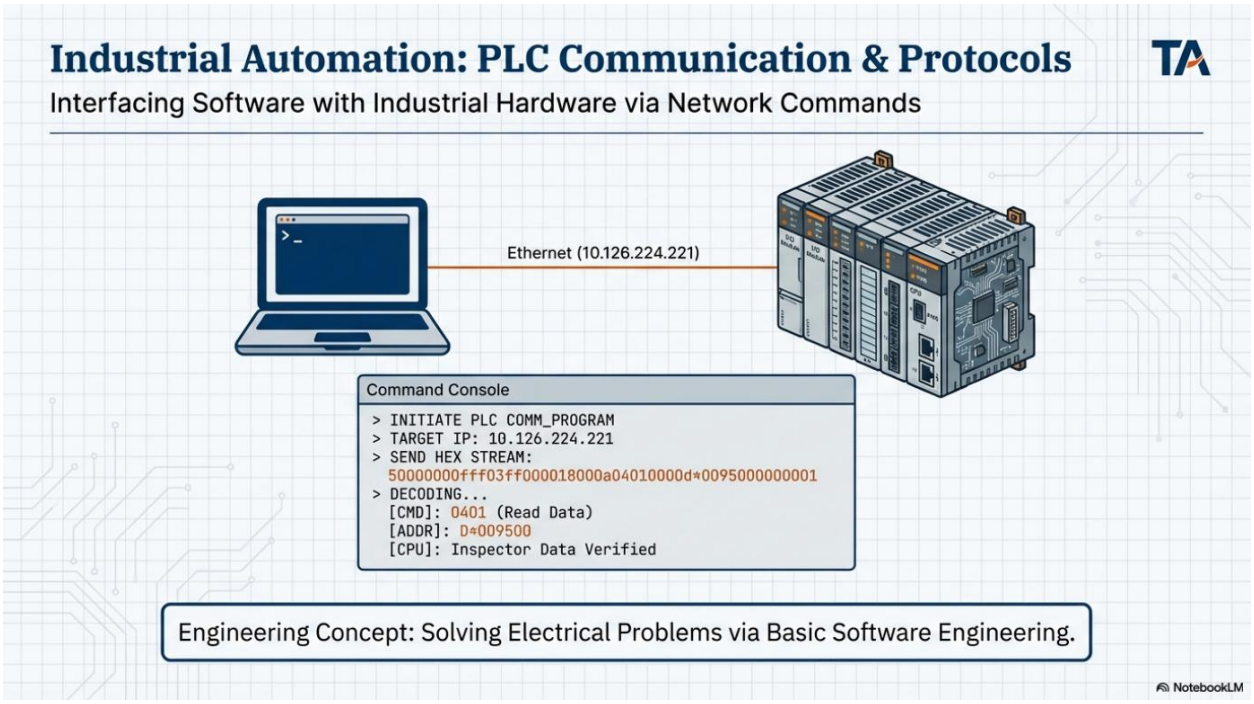
Secure Transaction Flow & Encryption Logic in VB.NET




```
Private Sub button_1_click()
    ' Hardcoded Security Check
    Const pin as integer = 9343
    Const service_charge as decimal = 6.5

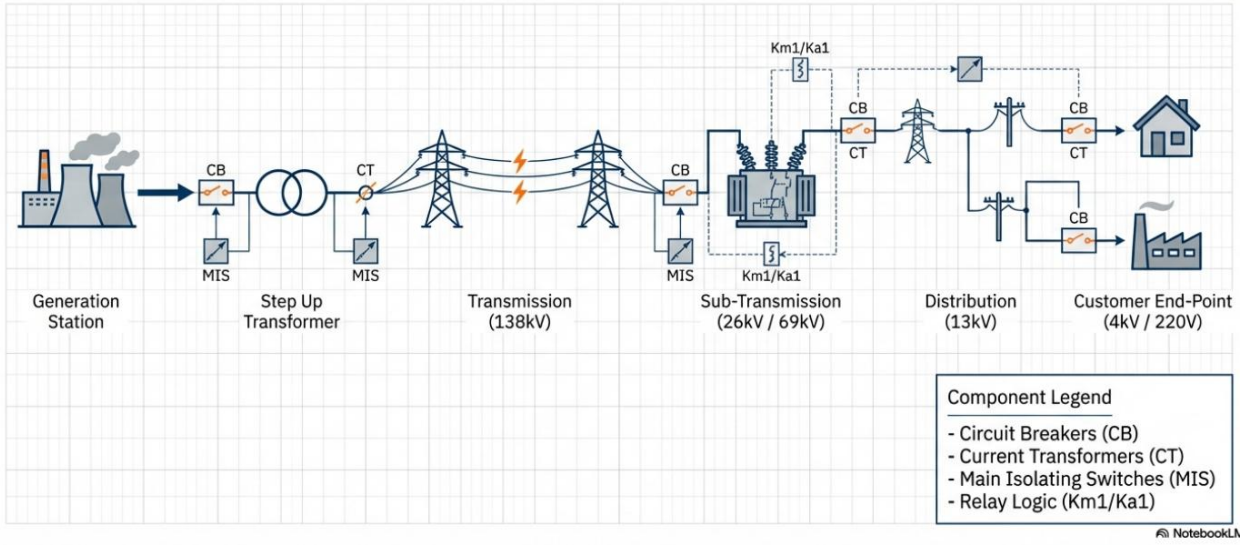
    If pin_box.text = '9343' Then
        Transaction_group.enabled = True
        MessageBox.Show('Access Granted')
    Else
        MessageBox.Show('Incorrect PIN', 'Security Alert
    End If
End Sub
```

NotebookLM



Electrical Infrastructure: Power Distribution Frameworks

Schematic Overview of Generation to End-User Delivery via Standard Engineering Symbols.



Smart Metering Technology & Energy Management

Series MKM35512 Hardware & Calculation Logic

Device Spec Sheet

****Hardware Specifications****

- Voltage: 240 VAC +20%
- Current: 0-60A (Dynamic Range 72A)
- Connectivity: GPRS Module (SIM), Infrared IEC 62056
- Display: 8x16 Segment LCD
- Features: Magnetic Tamper Detection, Non-Volatile Memory (256kb)

Active Power (P):

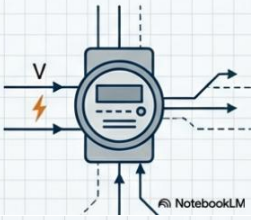
$$P = \frac{1}{T}\int u(t)\cdot i(t)\,dt$$

Reactive Power (Q):

$$Q = \frac{1}{T}\int u(t-90^\circ)\cdot i(t)\,dt$$

Apparent Power (S):

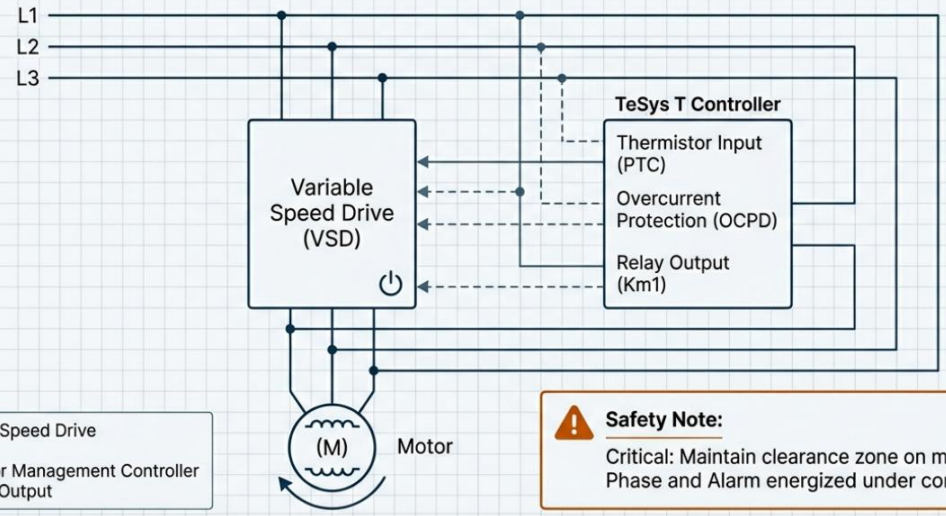
$$S = \sqrt{P^2 + Q^2}$$



NotebookLM

Industrial Motor Control & Protection Systems

Schneider TeSys T Management & VSD Integration



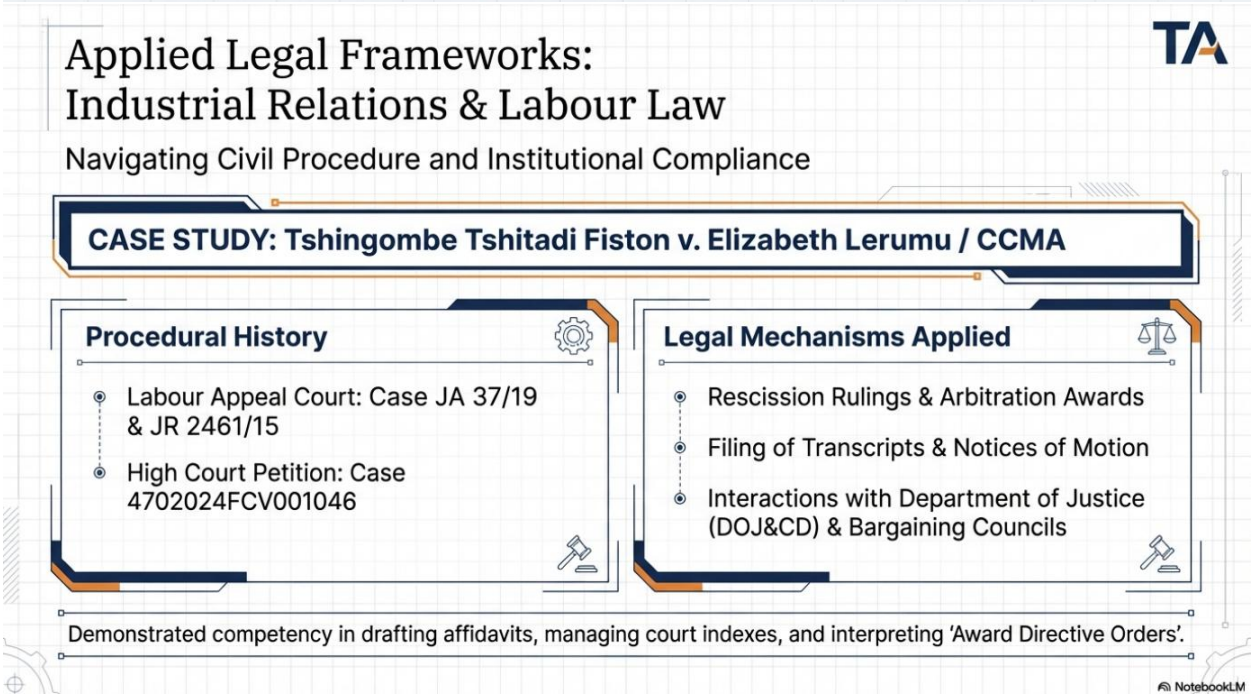
VSD: Variable Speed Drive
M: Motor
TeSys T: Motor Management Controller
Km1: Contact Output

Safety Note:

Critical: Maintain clearance zone on mounting plate. Phase and Alarm energized under connection.

NotebookLM

Strategic Security Operations & Policing Standards
Alignment with SAPS Hillbrow Station Requirements (Ref: GP 49/3/17)
Investigation & Detection
- Detective Services
- Economic Crime Investigation
- Docket Management
txt_label4=true
Applied Policing and Crime Resolution
Background: Applied Policing and criminal record center management system information.
Crime Prevention
- Sector Policing
- Crime Heatmaps
- Community Engagement
txt_lbl6=true
Incident Collision Scenarios & Prevention
Applications in Crime Resolution and Prevention; Incident Collision Scenarios and Traffic Safety.
POLIEE
Operational Standards
- Traffic Safety Management
- PSIRA Grade A Certification
- Firearms Control
txt_lbl8=true
Research Methods & Standards
Research Methods for Conducting Patrols and Community Engagement; Principles of Police Investigation.
NotebookLM


Applied Legal Frameworks: Industrial Relations & Labour Law
Navigating Civil Procedure and Institutional Compliance
CASE STUDY: Tshingombe Tshitadi Fiston v. Elizabeth Lerumu / CCMA
Procedural History
Labour Appeal Court: Case JA 37/19 & JR 2461/15
High Court Petition: Case 4702024FCV001046
Legal Mechanisms Applied
Rescission Rulings & Arbitration Awards
Filing of Transcripts & Notices of Motion
Interactions with Department of Justice (DOJ&CD) & Bargaining Councils
Demonstrated competency in drafting affidavits, managing court indexes, and interpreting 'Award Directive Orders'.
NotebookLM

Technical Editorial | High-Fidelity Engineering Schematics

TA

Social Protection Law: Domestic Violence & Harassment Acts

Legislative Distinction & Procedural Workflow

Domestic Violence Act (116 of 1998)	Protection from Harassment Act (17 of 2011)
• **Scope:** Domestic Relationships (Family, Shared Residence) • **Requirement:** Pattern of repetitive abuse (Physical, Economic, Emotional)	• **Scope:** Non-Domestic (Neighbors, Strangers, Stalking) • **Requirement:** No pattern needed; single act is sufficient.

Protection Order Procedure

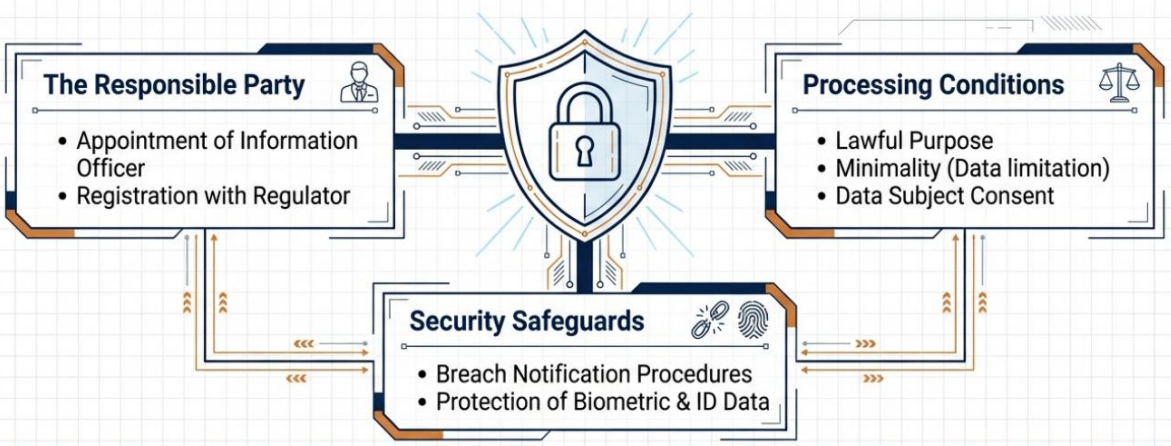
1. Application (Form 2)
2. Interim Protection Order (Magistrate)
3. Service by Sheriff/SAPS
4. Final Order & Suspended Warrant
Procedural flow is critical for effective legal remedy enforcement.

NotebookLM

TA

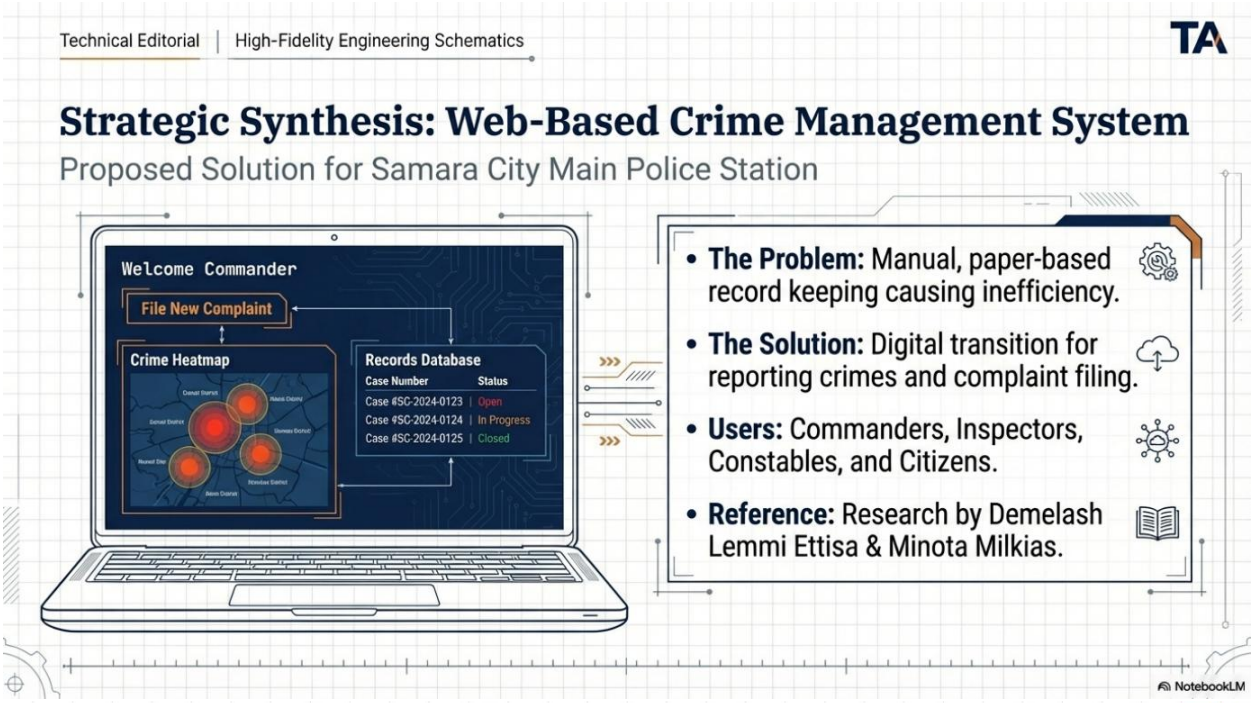
Data Privacy & Regulatory Compliance (POPIA)

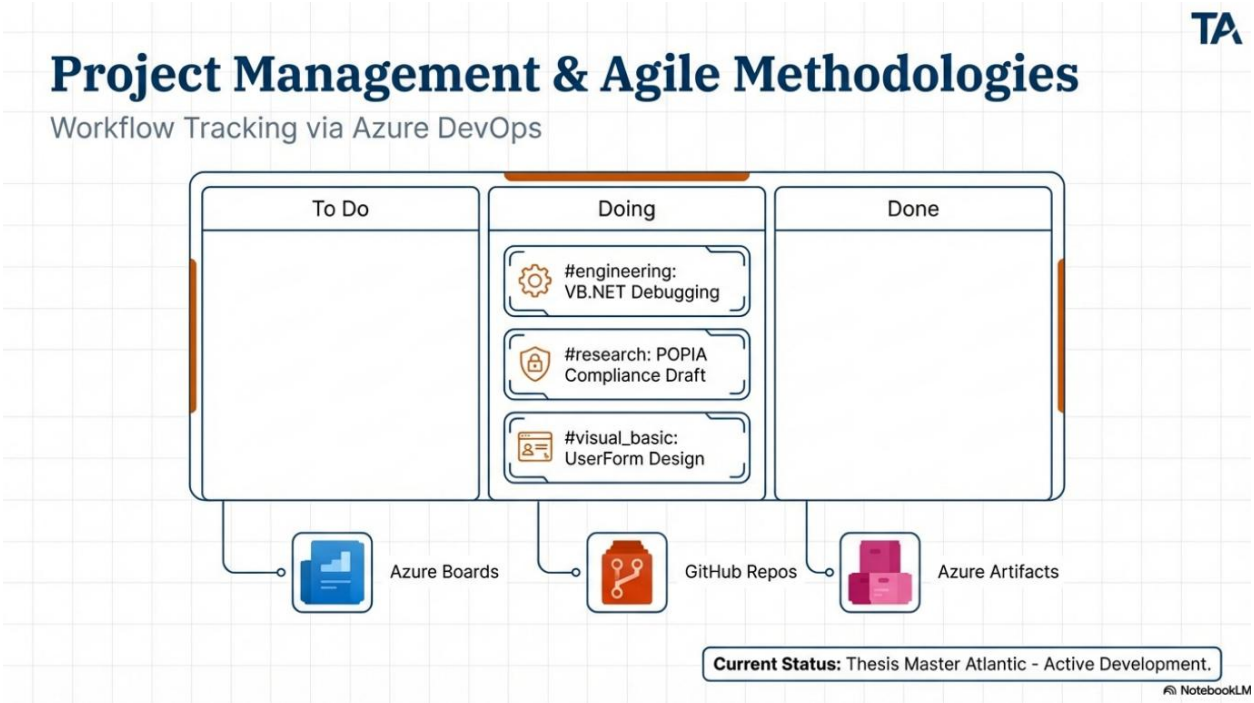
The Intersection of HR Management and Information Systems



Strategic Application → Ensures legal compliance for Student Database and Crime Management Systems.

NotebookLM


Technical Editorial | High-Fidelity Engineering Schematics
TA
Strategic Synthesis: Web-Based Crime Management System
Proposed Solution for Samara City Main Police Station
Welcome Commander
File New Complaint
Crime Heatmap
Records Database
Case Number
Status
Case #SC-2024-0123 | Open
Case #SC-2024-0124 | In Progress
Case #SC-2024-0125 | Closed
• The Problem: Manual, paper-based record keeping causing inefficiency.
• The Solution: Digital transition for reporting crimes and complaint filing.
• Users: Commanders, Inspectors, Constables, and Citizens.
• Reference: Research by Demelash Lemmi Ettisa & Minota Milkias.
NotebookLM


TA
Project Management & Agile Methodologies
Workflow Tracking via Azure DevOps
To Do
Doing
Done
#engineering: VB.NET Debugging
#research: POPIA Compliance Draft
#visual_basic: UserForm Design
Azure Boards
GitHub Repos
Azure Artifacts
Current Status: Thesis Master Atlantic - Active Development.
NotebookLM

Tshingombe Tshitadi Fiston

Multidisciplinary Professional Portfolio

Engineering

- Schneider Electric Assessment
- Alison Engineering Diplomas
- St Peace College

Security

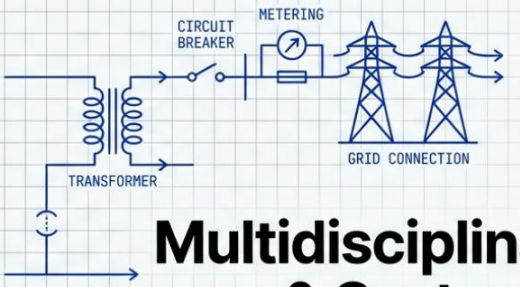
- PSIRA Grade A Registered
- SAPS Recruitment Standards

Legal

- Department of Justice (DOJ&CD) System User
- CCMA & Labour Court Procedure

Digital Footprint: GitHub | Azure DevOps ('thesis master') | tshingombe.com

NotebookLM




```
Public Class PowerSystemManager
    Private powerGrid As New ElectricalGrid()
    Private transformer As New TransformerUnit()
    ' Initialize System Components
    Public Sub Initialize()
        Try
            powerGrid.Connect()
            transformer.ConfigureSettings()
        Catch ex As Exception
            LogError(ex.Message)
        End Try
    End Sub

    ' Monitor Grid Status
                                    As Boolean
                                    tVoltage()
                Return True
            End If
        End Sub
    End Class
```

Multidisciplinary Engineering & Systems Portfolio

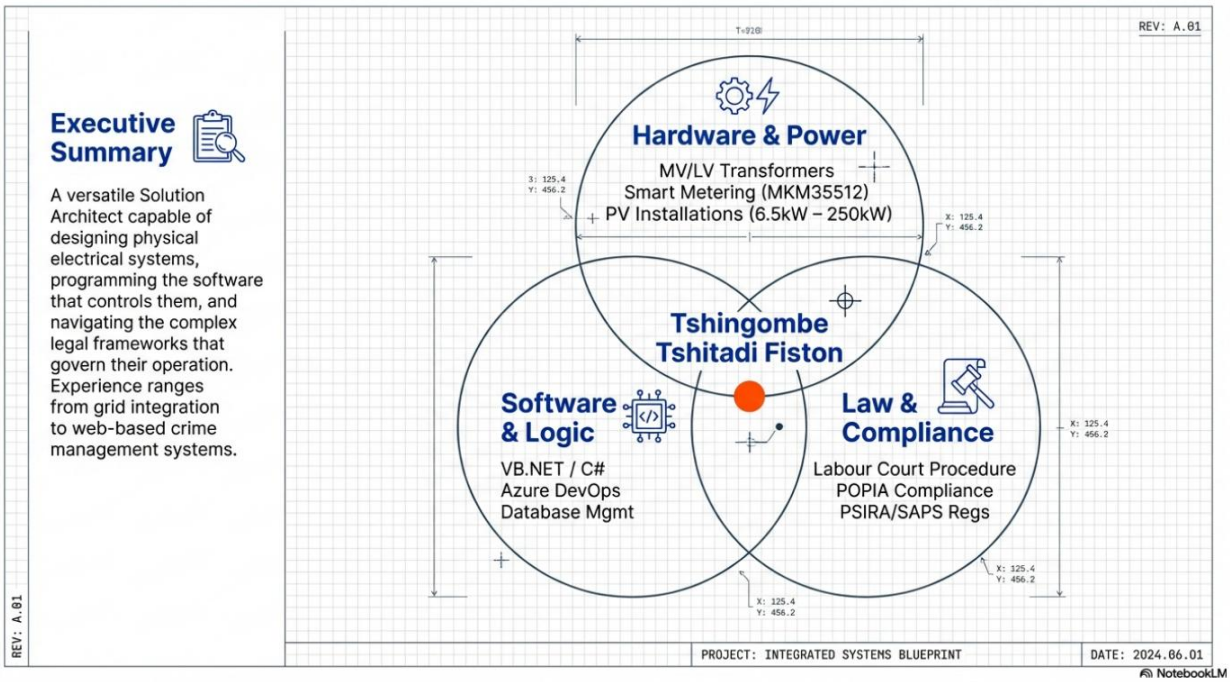
Bridging Electrical Infrastructure, Software Architecture, and Regulatory Compliance.

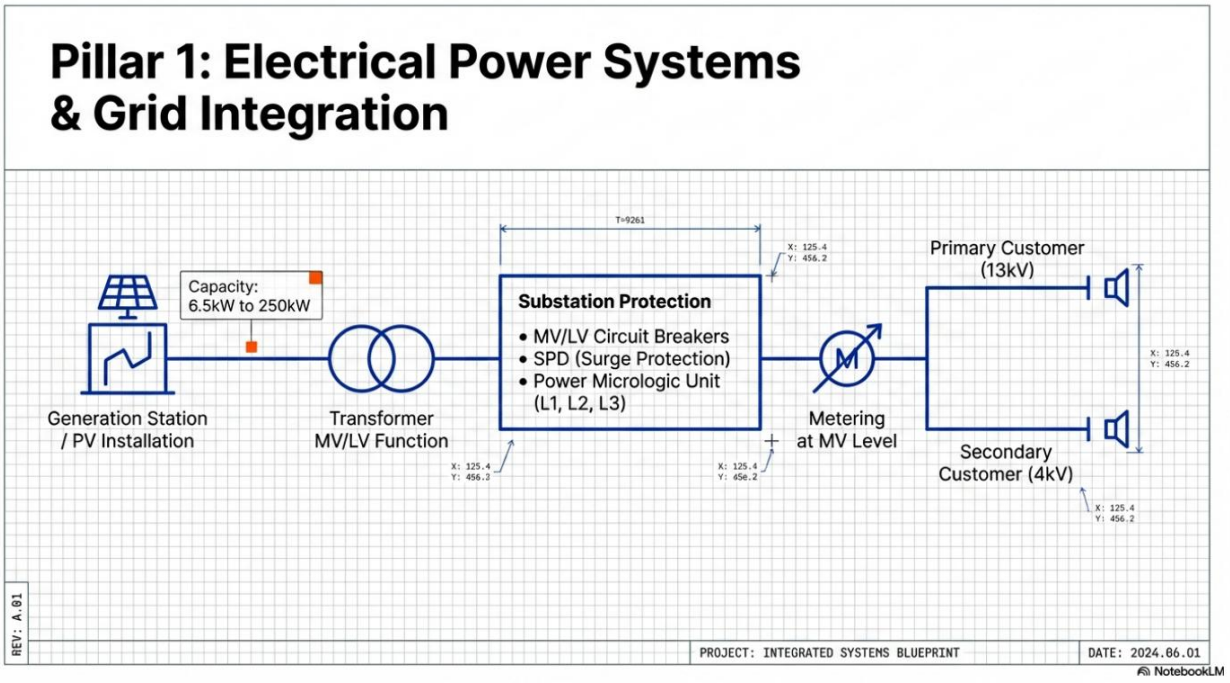
```
    Public Sub OptimizeFlow()
        If CheckGridStability() Then
            transformer.AdjustTap(1)
        Else
            powerGrid.IsolateFault()
        End If
    End Sub
End Class
```

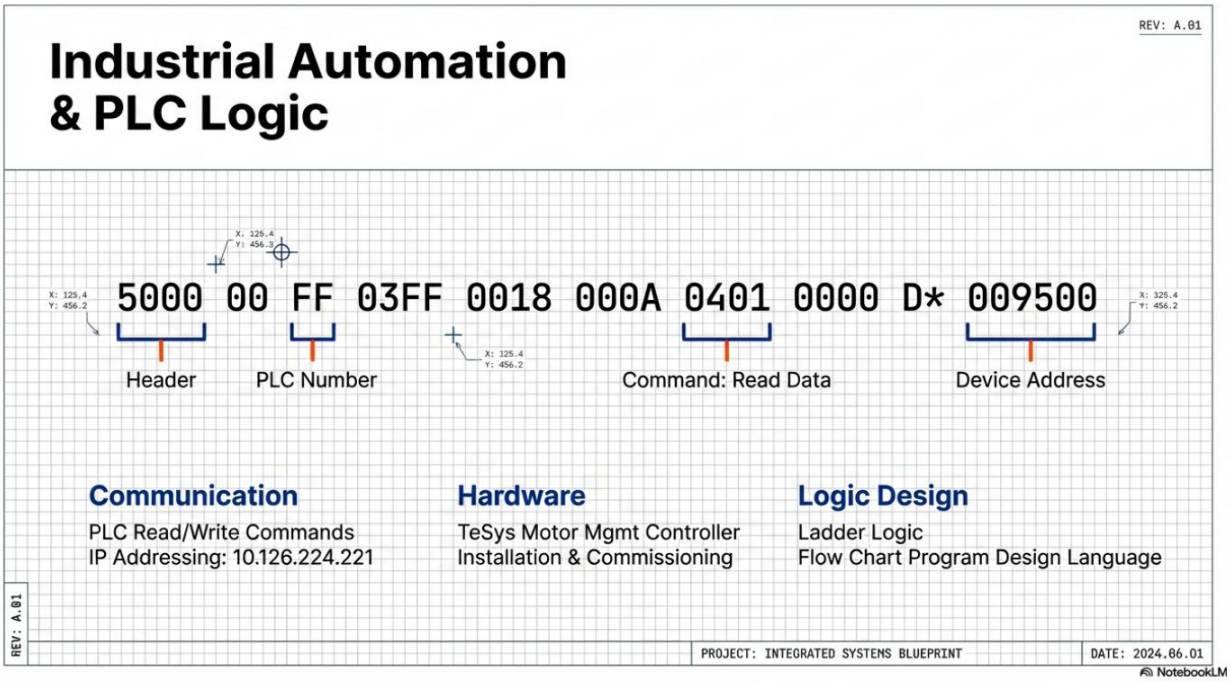
Tshingombe Tshitadi Fiston

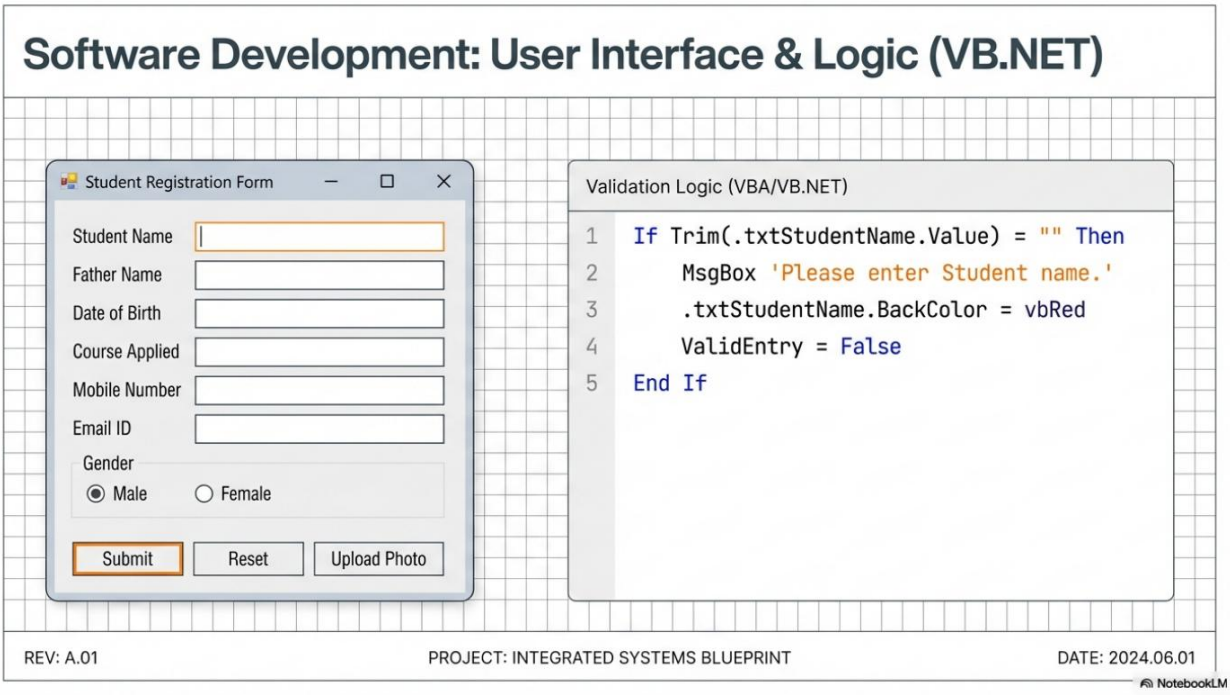
Electrical Engineering (Nated/TVET) | Systems Development (VB.NET/Azure) | Legal Procedural Expertise

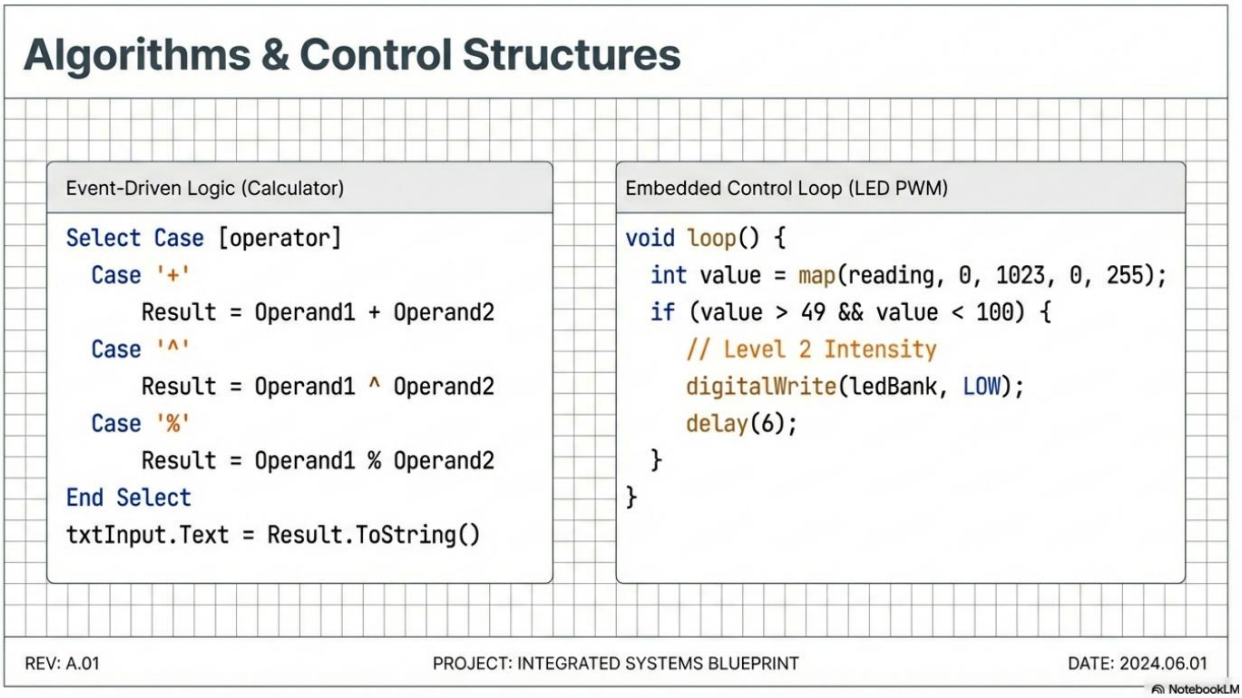
NotebookLM

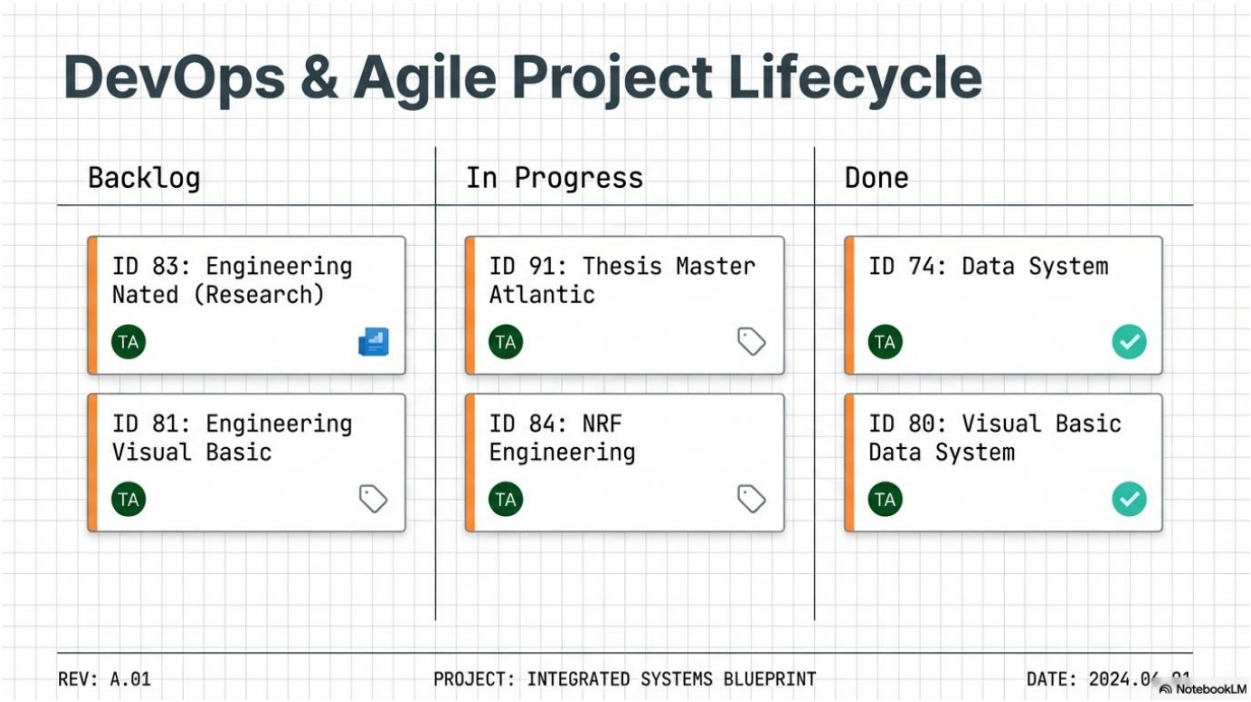

REV: A.01
Executive Summary
A versatile Solution Architect capable of designing physical electrical systems, programming the software that controls them, and navigating the complex legal frameworks that govern their operation. Experience ranges from grid integration to web-based crime management systems.
Hardware & Power
MV/LV Transformers
Smart Metering (MKM35512)
PV Installations (6.5kW – 250kW)
Tshingombe Tshitadi Fiston
Software & Logic
VB.NET / C#
Azure DevOps
Database Mgmt
Law & Compliance
Labour Court Procedure
POPIA Compliance
PSIRA/SAPS Regs
REV: A.01
PROJECT: INTEGRATED SYSTEMS BLUEPRINT
DATE: 2024.06.01
NotebookLM

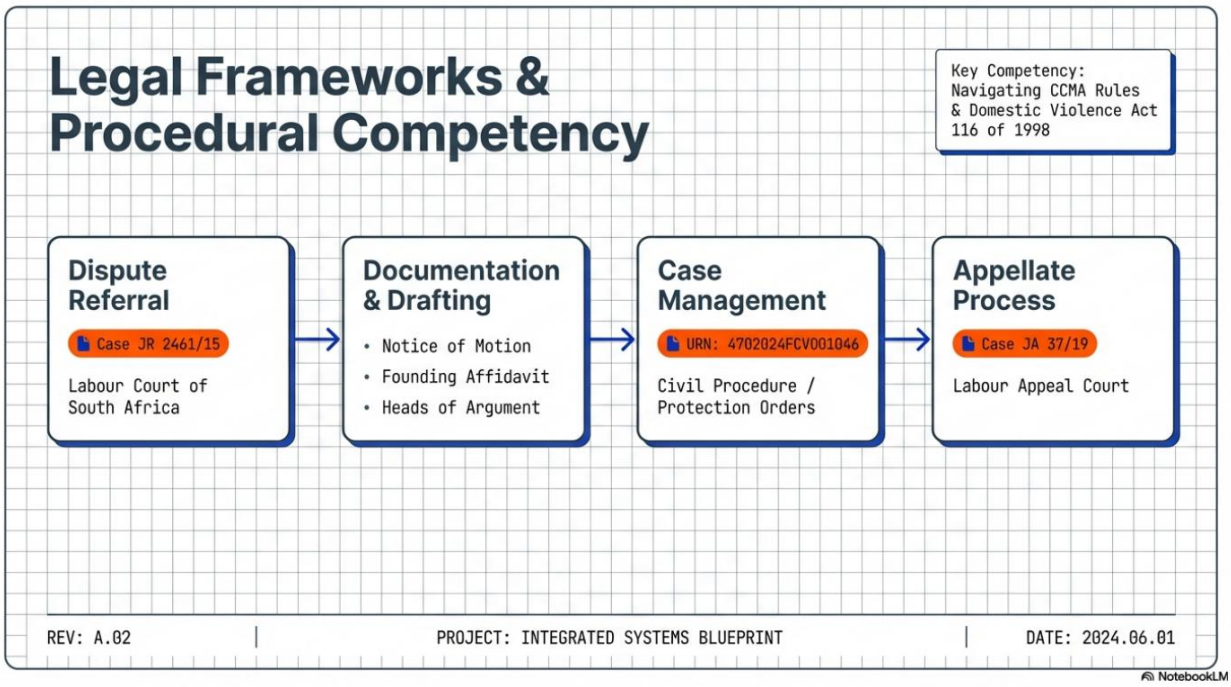

Pillar 1: Electrical Power Systems & Grid Integration
Capacity: 6.5kW to 250kW
Generation Station / PV Installation
Transformer MV/LV Function
Substation Protection
• MV/LV Circuit Breakers
• SPD (Surge Protection)
• Power Micrologic Unit (L1, L2, L3)
Metering at MV Level
Primary Customer (13kV)
Secondary Customer (4kV)
REV: A.01
PROJECT: INTEGRATED SYSTEMS BLUEPRINT
DATE: 2024.06.01
NotebookLM

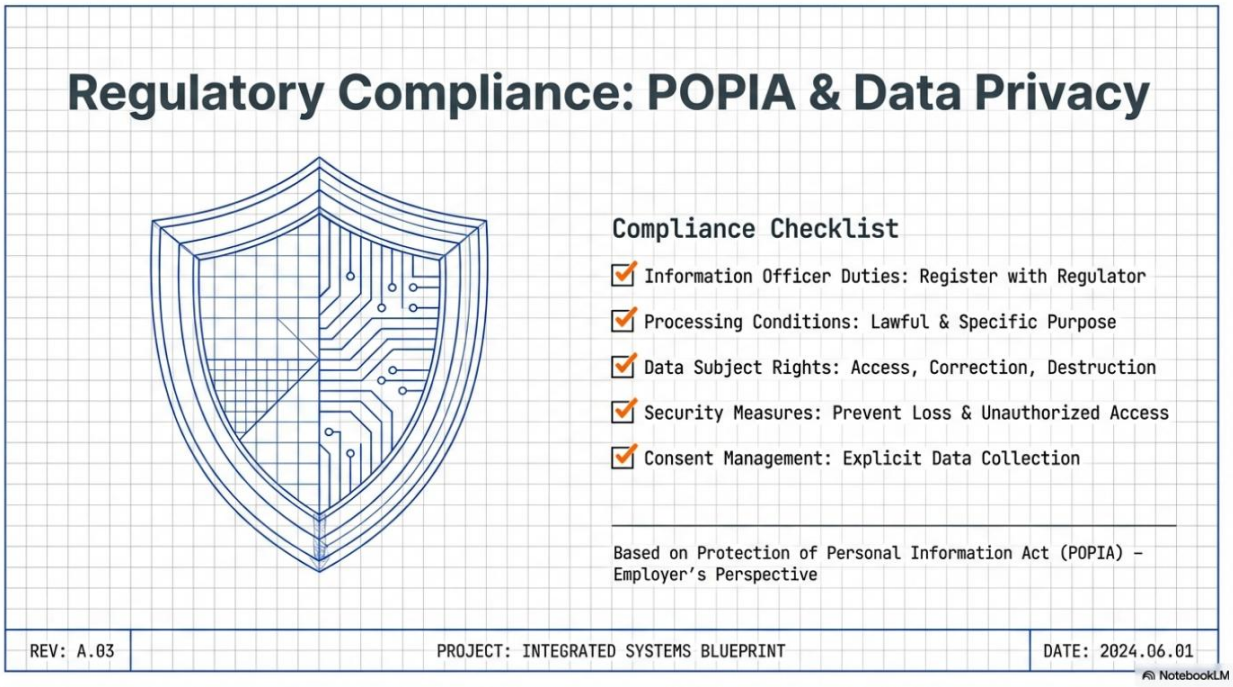

REV: A.01
Industrial Automation
& PLC Logic
5000 00 FF 03FF 0018 000A 0401 0000 D* 009500
Header
PLC Number
Command: Read Data
Device Address
Communication
PLC Read/Write Commands
IP Addressing: 10.126.224.221
Hardware
TeSys Motor Mgmt Controller
Installation & Commissioning
Logic Design
Ladder Logic
Flow Chart Program Design Language
REV: A.01
PROJECT: INTEGRATED SYSTEMS BLUEPRINT
DATE: 2024.06.01
NotebookLM

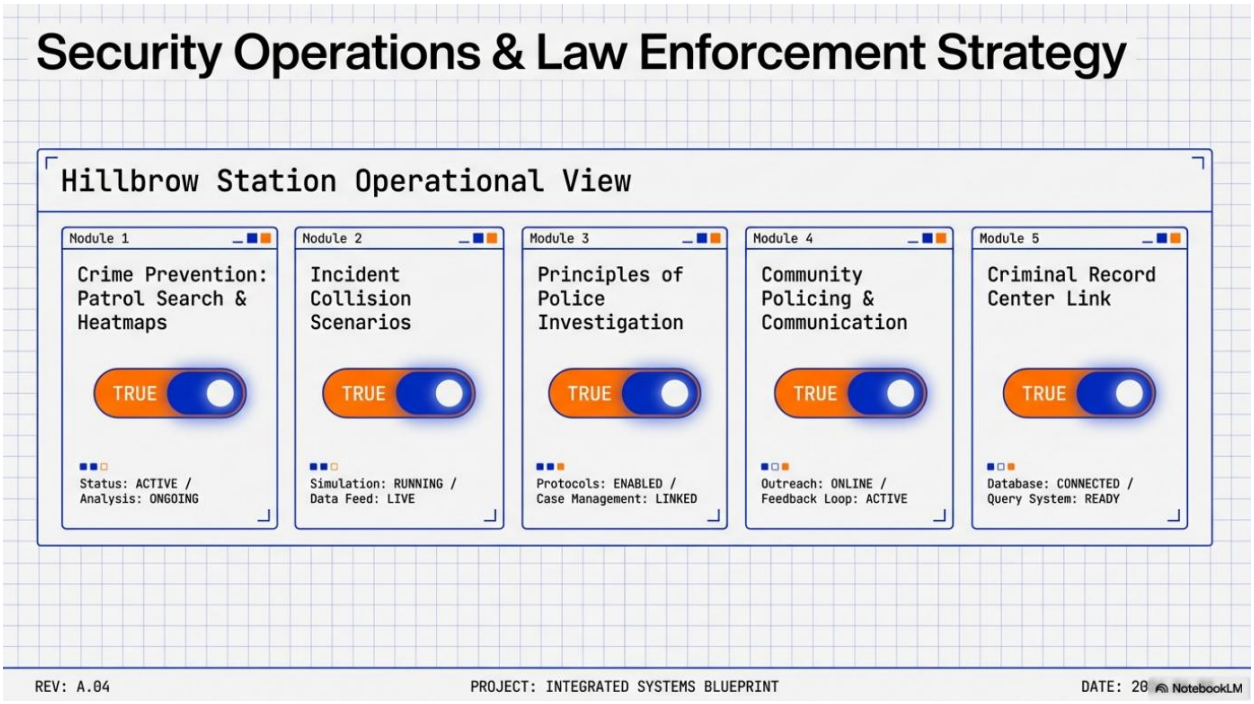

Software Development: User Interface & Logic (VB.NET)
Student Registration Form
Student Name
Father Name
Date of Birth
Course Applied
Mobile Number
Email ID
Gender
Male
Female
Submit
Reset
Upload Photo
Validation Logic (VBA/VB.NET)
1 If Trim(.txtStudentName.Value) = "" Then
2 MsgBox 'Please enter Student name.'
3 .txtStudentName.BackColor = vbRed
4 ValidEntry = False
5 End If
REV: A.01
PROJECT: INTEGRATED SYSTEMS BLUEPRINT
DATE: 2024.06.01
NotebookLM

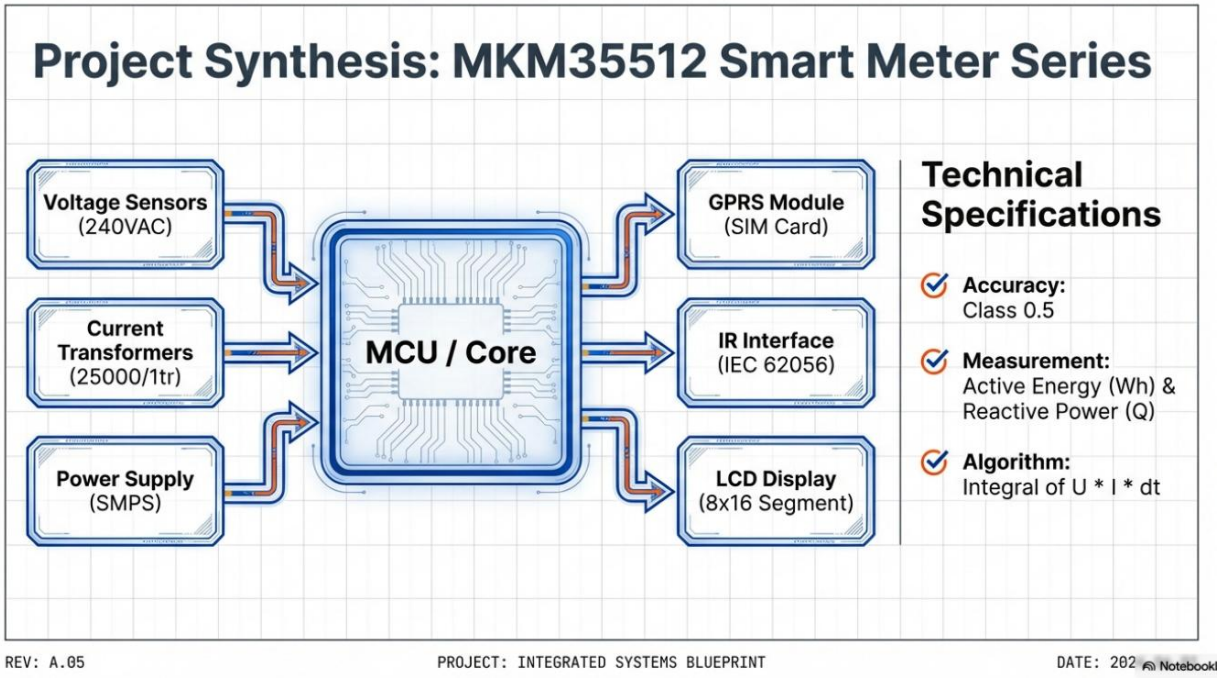

Algorithms & Control Structures
Event-Driven Logic (Calculator)
Select Case [operator]
Case '+'
Result = Operand1 + Operand2
Case '^'
Result = Operand1 ^ Operand2
Case '%'
Result = Operand1 % Operand2
End Select
txtInput.Text = Result.ToString()
Embedded Control Loop (LED PWM)
void loop() {
int value = map(reading, 0, 1023, 0, 255);
if (value > 49 && value < 100) {
// Level 2 Intensity
digitalWrite(ledBank, LOW);
delay(6);
}
}
REV: A.01
PROJECT: INTEGRATED SYSTEMS BLUEPRINT
DATE: 2024.06.01
NotebookLM

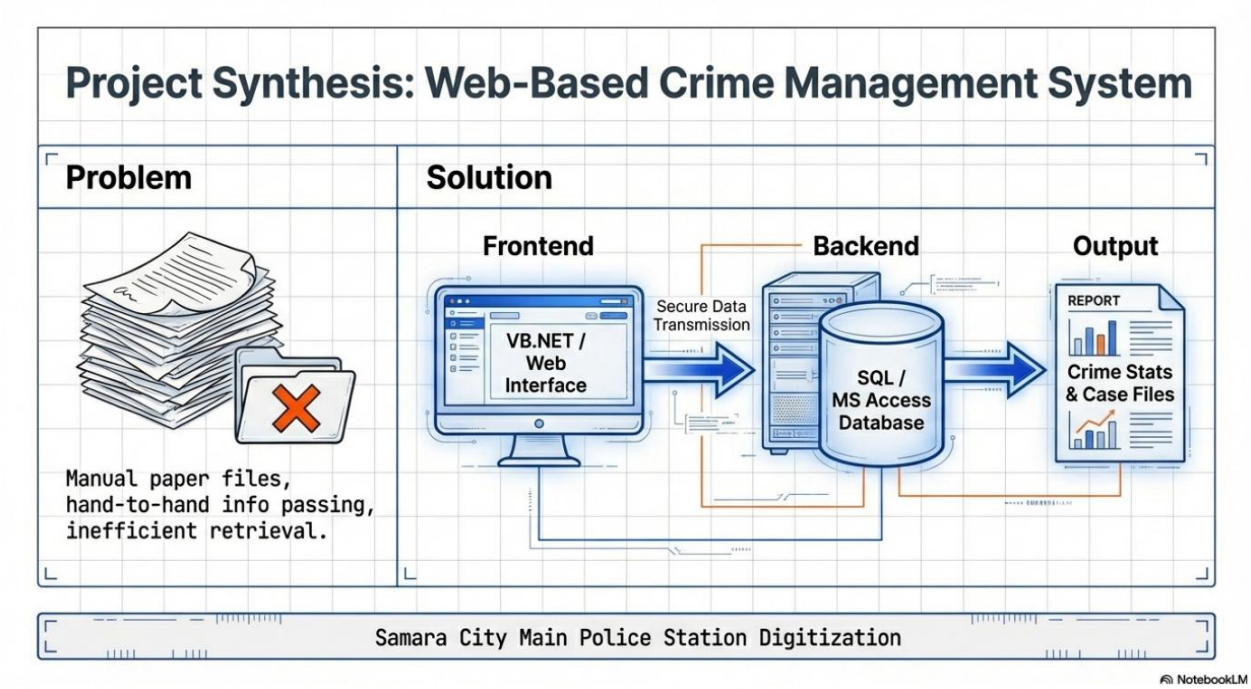

DevOps & Agile Project Lifecycle
Backlog
In Progress
Done
ID 83: Engineering Nated (Research)
TA
ID 91: Thesis Master Atlantic
TA
ID 74: Data System
TA
ID 81: Engineering Visual Basic
TA
ID 84: NRF Engineering
TA
ID 80: Visual Basic Data System
TA
REV: A.01
PROJECT: INTEGRATED SYSTEMS BLUEPRINT
DATE: 2024.06.01
NotebookLM

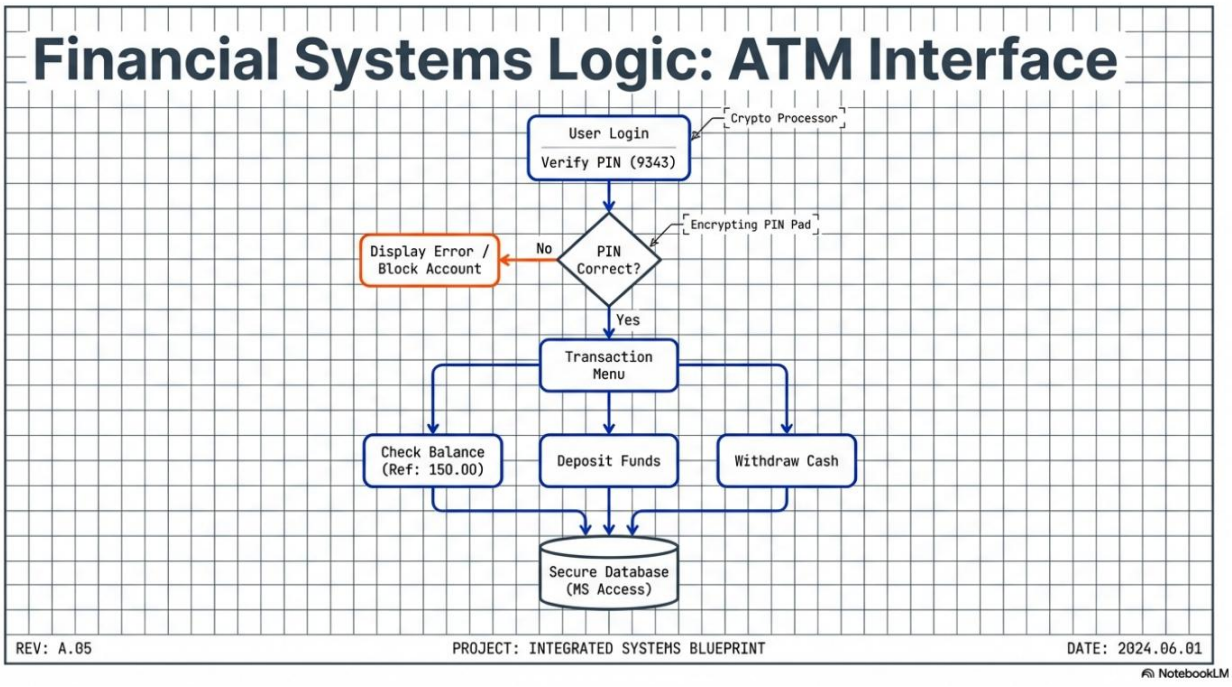

Legal Frameworks & Procedural Competency
Key Competency: Navigating CCMA Rules & Domestic Violence Act 116 of 1998
Dispute Referral
Case JR 2461/15
Labour Court of South Africa
Documentation & Drafting
• Notice of Motion
• Founding Affidavit
• Heads of Argument
Case Management
URN: 4702024FCV001046
Civil Procedure / Protection Orders
Appellate Process
Case JA 37/19
Labour Appeal Court
REV: A.02
PROJECT: INTEGRATED SYSTEMS BLUEPRINT
DATE: 2024.06.01
NotebookLM

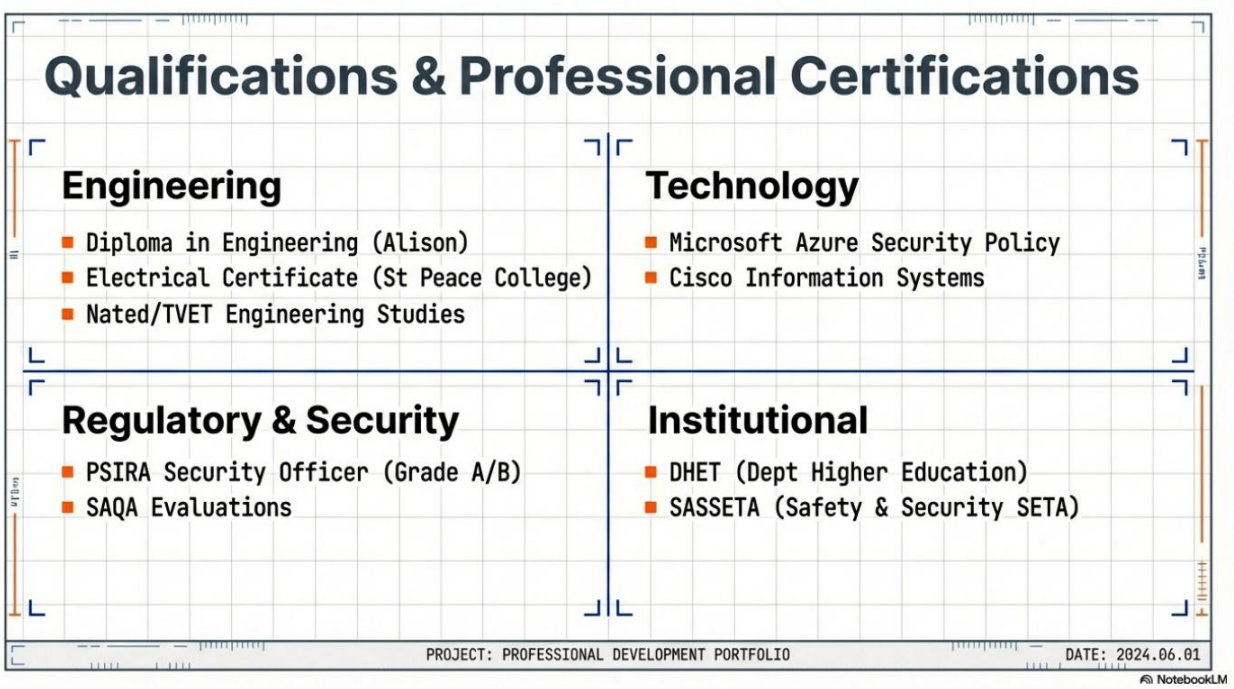

Regulatory Compliance: POPIA & Data Privacy
Compliance Checklist
Information Officer Duties: Register with Regulator
Processing Conditions: Lawful & Specific Purpose
Data Subject Rights: Access, Correction, Destruction
Security Measures: Prevent Loss & Unauthorized Access
Consent Management: Explicit Data Collection
Based on Protection of Personal Information Act (POPIA) – Employer's Perspective
REV: A.03
PROJECT: INTEGRATED SYSTEMS BLUEPRINT
DATE: 2024.06.01
NotebookLM

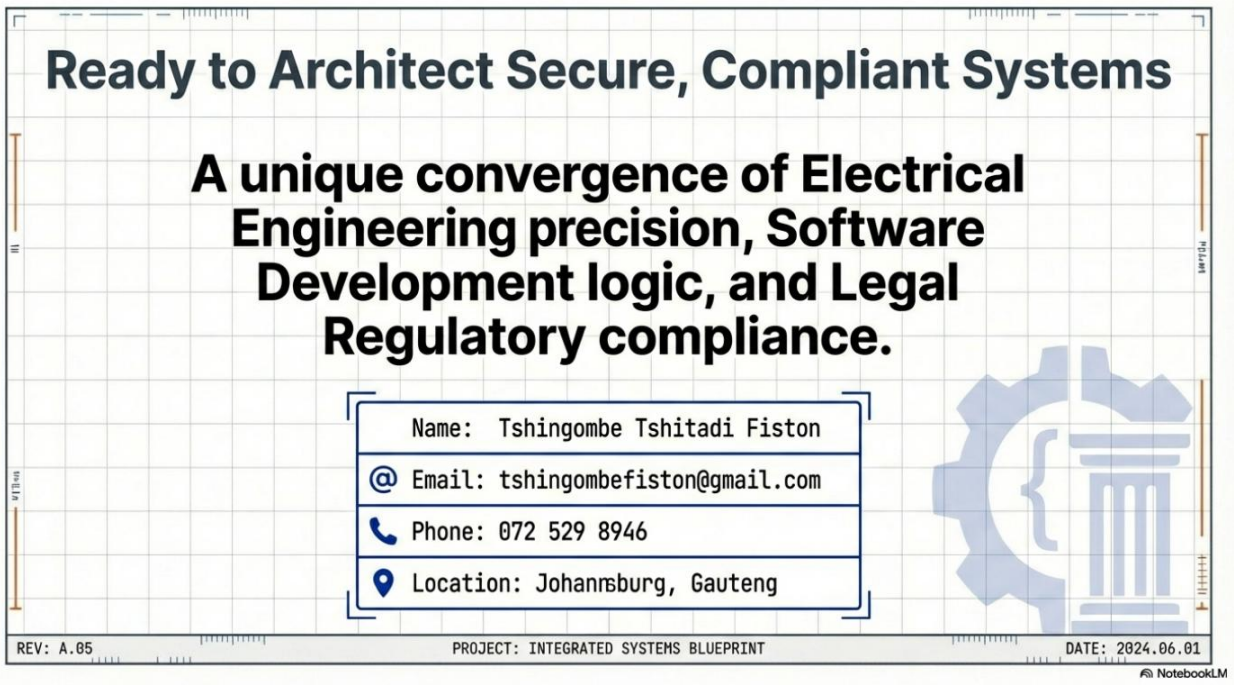

Security Operations & Law Enforcement Strategy
Hillbrow Station Operational View
Module 1
Crime Prevention: Patrol Search & Heatmaps
TRUE
Status: ACTIVE / Analysis: ONGOING
Module 2
Incident Collision Scenarios
TRUE
Simulation: RUNNING / Data Feed: LIVE
Module 3
Principles of Police Investigation
TRUE
Protocols: ENABLED / Case Management: LINKED
Module 4
Community Policing & Communication
TRUE
Outreach: ONLINE / Feedback Loop: ACTIVE
Module 5
Criminal Record Center Link
TRUE
Database: CONNECTED / Query System: READY
REV: A.04
PROJECT: INTEGRATED SYSTEMS BLUEPRINT
DATE: 28
NotebookLM

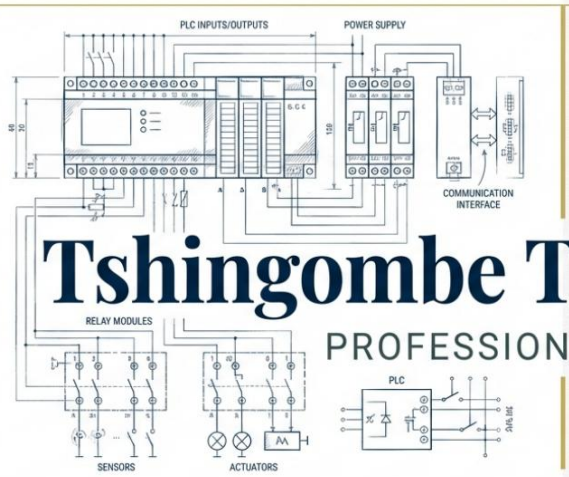

Project Synthesis: MKM35512 Smart Meter Series
Voltage Sensors (240VAC)
Current Transformers (25000/1tr)
Power Supply (SMPS)
MCU / Core
GPRS Module (SIM Card)
IR Interface (IEC 62056)
LCD Display (8x16 Segment)
Technical Specifications
Accuracy: Class 0.5
Measurement: Active Energy (Wh) & Reactive Power (Q)
Algorithm: Integral of U * I * dt
REV: A.05
PROJECT: INTEGRATED SYSTEMS BLUEPRINT
DATE: 202
NotebookL


Project Synthesis: Web-Based Crime Management System
Problem
Solution
Manual paper files, hand-to-hand info passing, inefficient retrieval.
Frontend
Backend
Output
VB.NET / Web Interface
Secure Data Transmission
SQL / MS Access Database
REPORT
Crime Stats & Case Files
Samara City Main Police Station Digitization
NotebookLM


Financial Systems Logic: ATM Interface
User Login
Verify PIN (9343)
Crypto Processor
PIN Correct?
Encrypting PIN Pad
No
Display Error / Block Account
Yes
Transaction Menu
Check Balance (Ref: 150.00)
Deposit Funds
Withdraw Cash
Secure Database (MS Access)
REV: A.05
PROJECT: INTEGRATED SYSTEMS BLUEPRINT
DATE: 2024.06.01
NotebookLM


Qualifications & Professional Certifications
Engineering
Diploma in Engineering (Alison)
Electrical Certificate (St Peace College)
Nated/TVET Engineering Studies
Technology
Microsoft Azure Security Policy
Cisco Information Systems
Regulatory & Security
PSIRA Security Officer (Grade A/B)
SAQA Evaluations
Institutional
DHET (Dept Higher Education)
SASSETA (Safety & Security SETA)
PROJECT: PROFESSIONAL DEVELOPMENT PORTFOLIO
DATE: 2024.06.01
NotebookLM


Ready to Architect Secure, Compliant Systems
A unique convergence of Electrical Engineering precision, Software Development logic, and Legal Regulatory compliance.
Name: Tshingombe Tshitadi Fiston
Email: tshingombefiston@gmail.com
Phone: 072 529 8946
Location: Johannesburg, Gauteng
REV: A.05
PROJECT: INTEGRATED SYSTEMS BLUEPRINT
DATE: 2024.06.01
NotebookLM



Tshingombe Tshitadi Fiston

PROFESSIONAL DOSSIER

Engineering Systems, Software Development, and Labour Rights Advocacy.

Senior Engineering & Assessment Officer

Confidential Review: Qualifications, Project Portfolio & Legal Compliance

NotebookLM

Executive Profile

ID
Born: 1982 | Role: Senior Engineering Officer

Technical Competence

- Electrical Engineering: Smart Meters, PLC, Motor Management
- Software Development: VB.NET, SQL, C#, Azure DevOps
- Physical Security & Surveillance Systems

Legal & Compliance

- § Labour Law Litigation (CCMA & Labour Court)
- § Forensic Investigation & Evidence Management
- § POPIA & Data Privacy Compliance

Mission Statement: To enforce technical standards in engineering while advocating for systemic justice within the labour and security sectors.

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Electrical Engineering: Smart Power Systems

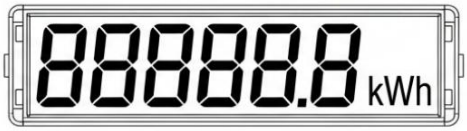
Technical Specifications: MKM35512 Series

ID
Born: 1982 | Role: Senior Engineering Officer

TECHNICAL SPECIFICATIONS

Device Type	Three-Phase AC Static Watt-Hour Smart Meter
Accuracy	Class 0.5 (0.5% deviation)
Voltage Range	240 VAC (+20%)
Current Range	0-60A (Dynamic up to 72A)
Frequency	50Hz (+5%)
Communication	GPRS Module (1x SIM), IEC 62056 Infrared

8x16 Segment LCD Display



8x16 Segment LCD Display

Key Features

- Tamper Detection: Magnetic interference & Cover open switch
- Measurements: V, A, kW, kvar, kVA, kWh (Import/Export)

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ID
ID
Born: 1982 | **Role:** Senior Engineering Officer

Industrial Automation & PLC Programming

Logic Control, Hexadecimal Conversion & Motor Management

Hardware Focus

- **TeSys T Motor Management Controller** – Installation, Commissioning, Parameter Configuration. Protection against Overcurrent, Phase Failure, and Reverse Phase (L1, L2, L3).

```
// PLC Communication Protocol
String .cmd=" ";
CMD=CMD+"5000"; //sub head(not)
CMD=CMD+"FF";   //PLC NUMBER
CMD=CMD+"03FF"; //DEMAND OBJECT
CMD=CMD+"000A"; //cpu inspector data
CMD=CMD+"0401"; //Read Command
CMD=CMD+"D*";   //Device Code
```

Process Flow

Read Data
↓
Hex Conversion
↓
Logic Gate (AND/OR)
↓
Write to PLC Memory

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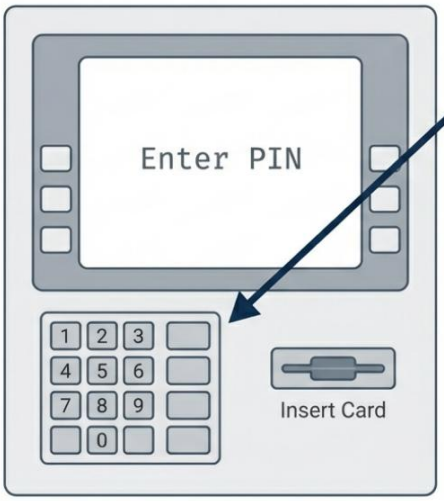
Software Development: Financial Systems

Automated Teller Machine (ATM) Logic in VB.NET




```
Const pin as integer = 9343

Private function deposit (by ref amount as decimal)
    Balance = amount
    Return balance
End function

Const service_charge as decimal = 6.5

// Error Handling Loop
If pin_entry <> 9343 Then
    Message("Incorrect pin, try again")
End If
```

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Database Management & User Interface Design

Automated Student Registration System (Excel/VBA & SQL)

Backend Logic

- **Data Validation:** Regex for email (`'^[\w-\.]{1,}\@...'`)
- **Image Handling:** `PictureSizeMode = fmPictureSizeModeStretch`
- **SQL Integration: Automated entry validation and storage.**

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Project Management & Agile Workflows

Azure DevOps & Work Item Tracking

Work Item List

ID #83: Engineering	nated nvc excell research tvet	
ID #82: Engineering	visual excell ms word	
ID #78: Engineering	excell visual basic ts	✓
ID #70: Engineering		✓

Project Context

Thesis Master Atlantic

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Professional Qualifications & History

Key Certifications

- Assessment Expert (Schneider Electric)
- Security Engineering (Eaton)
- Policing & Detective Service Training (Met Police UK - Online)

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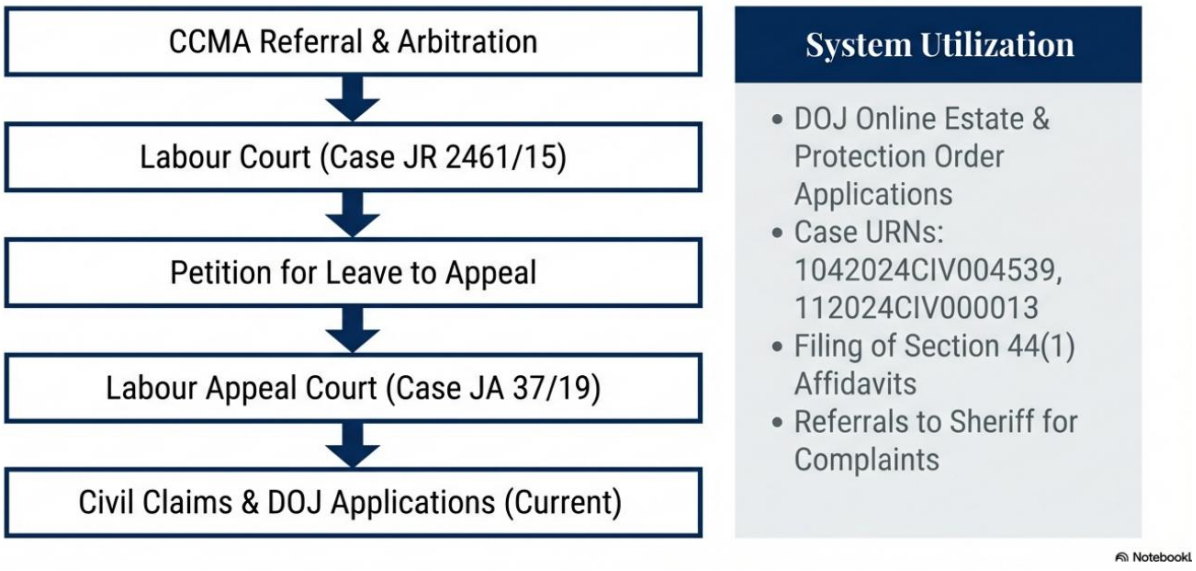
The Legal Dossier: Unfair Dismissal & Labour Rights

Case References: JR 2461/15 (Labour Court) & JA 37/19 (Labour Appeal Court)

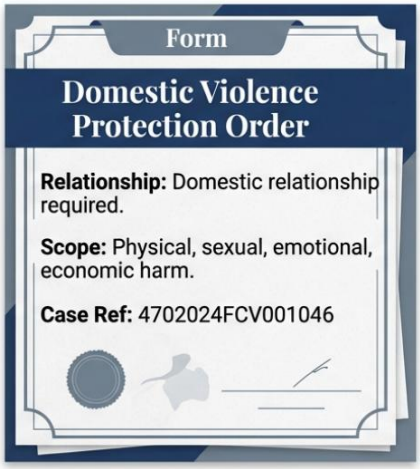
CONFIDENTIAL
Respondent: Nogada SA / CCMA
Cause of Action: Unfair Dismissal & Unfair Labour Practices
Key Disputes:
• Bargaining Council Irregularities
• Provident Fund (PSIRA) Disputes
• Procedural Unfairness in Arbitration Awards
'Right justice labour mandatory.' – Extracted from Petition to Judge President.

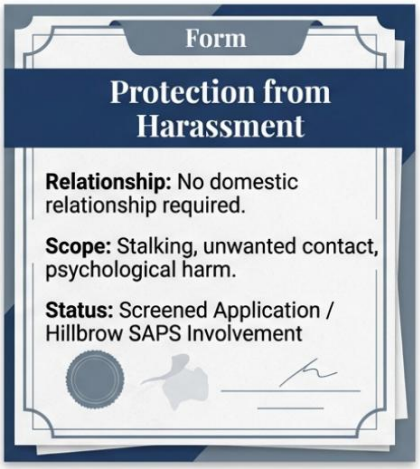
Procedural History & Systemic Engagement


CCMA Referral & Arbitration
Labour Court (Case JR 2461/15)
Petition for Leave to Appeal
Labour Appeal Court (Case JA 37/19)
Civil Claims & DOJ Applications (Current)
System Utilization
• DOJ Online Estate & Protection Order Applications
• Case URNs: 1042024CIV004539, 112024CIV000013
• Filing of Section 44(1) Affidavits
• Referrals to Sheriff for Complaints

Domestic Violence Act & Protection Mechanisms

Utilization of Act 116 of 1998 & Act 17 of 2011




Form
Protection from Harassment
Relationship: No domestic relationship required.
Scope: Stalking, unwanted contact, psychological harm.
Status: Screened Application / Hillbrow SAPS Involvement

Enforcement: Warrant of Arrest for Contempt of Court upon breach.

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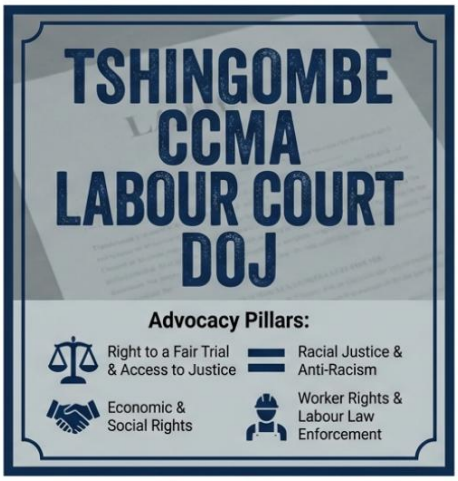
Social Justice Advocacy

Activism Row 2025: Human Rights Festival



Mission: Transforming personal legal struggle into a public interest movement for justice.

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Compliance & Data Privacy (POPIA)

Protection of Personal Information Act

Information Officer Responsibilities

- ☑ **Lawful Processing:** Ensure data is processed for specific, lawful purposes.
- ☑ **Special Personal Information:** Managing biometrics & criminal history.
- ☑ **Data Breach Protocol:** Notification procedures to Information Regulator.
- ☑ **Data Subject Rights:** Access, Correction, and Objection.
- ☑ **Security Measures:** Firewalls and unauthorized access prevention.

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Strategic Objectives & Value Proposition

The Engineer

- Secure Electrical Systems (Smart Grid)
- Software Automation (VB.NET, SQL, PLC)
- Physical Security Integration

The Advocate

- Labour Law Compliance
- Forensic Investigation
- Data Privacy (POPIA) & Ethics

Target Outcomes:

Reinstatement, Compensation for Unfair Practices, and Deployment in High-Level Security Engineering Roles.

NotebookLM

Contact Information

Tshingombe Tshitadi Fiston

Engineering Senior | Assessment Officer | Labour Rights Advocate

Email: tshingombefiston@gmail.com

Phone: 072 529 8946

Location: Johannesburg / Hillbrow Area

Web: tshingombe.com

Profiles: LinkedIn | Azure DevOps

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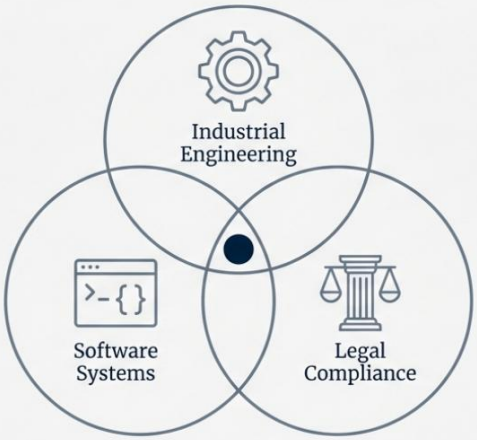
Engineering, Security & Law: A Multidisciplinary Professional Portfolio

The strategic intersection of Industrial Automation, Software Systems, and Regulatory Compliance.



Tshingombe Tshitadi Fiston

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Current Roles:

- **Senior Engineering (Microsoft)**
- **Detective/Sector Policing Applicant (SAPS)**
- **Security Assessment Expert (Schneider Electric)**

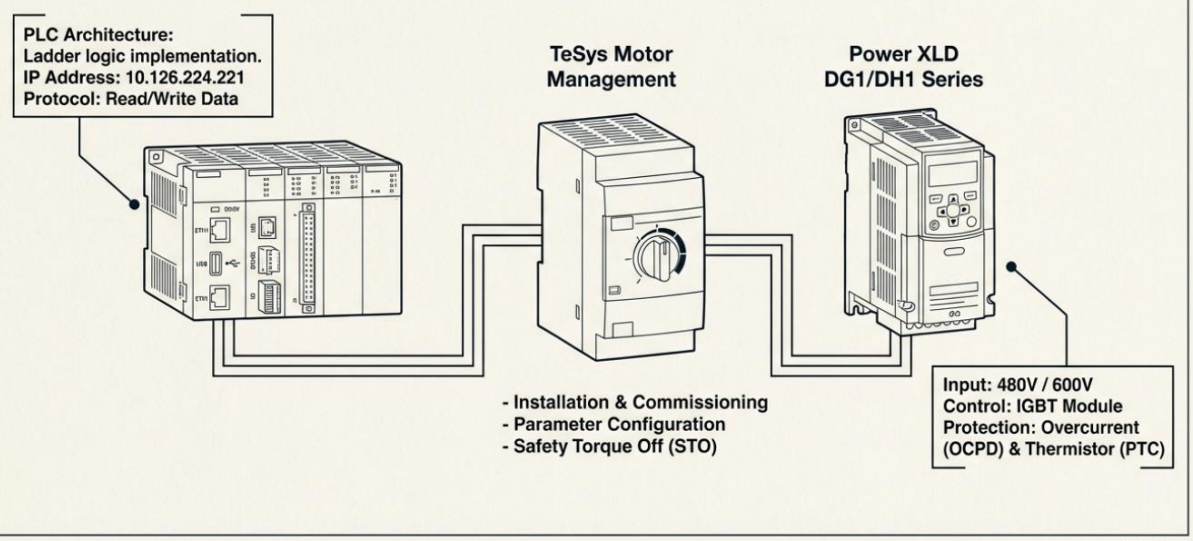
Executive Profile & Value Proposition

A versatile professional combining senior-level engineering expertise with a profound understanding of South African legal frameworks and security protocols. Proven track record in designing complex electrical infrastructure while navigating intricate regulatory environments.

Technical Competencies	Design and commissioning of PV installations (6.5kW – 250kW), Substation maintenance, and Grid Integration.
Digital Competencies	Full-stack development of financial systems (ATM simulation) and administrative automation (VBA/Excel).
Regulatory Competencies	Expert navigation of CCMA dispute resolutions, Labour Court appeals, and the Domestic Violence Act 116 of 1998.

NotebookLM

Industrial Automation & Control Systems



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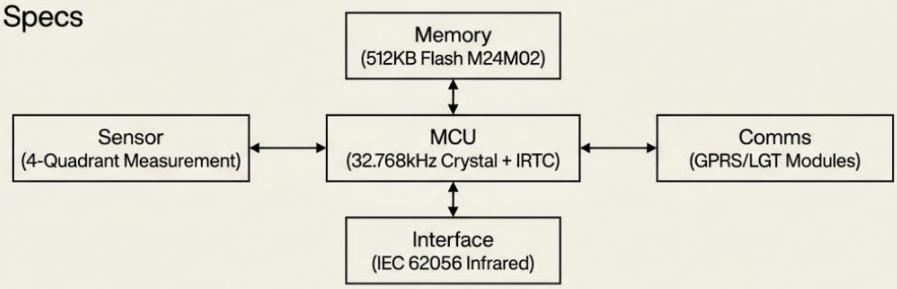
Innovation Showcase: Three-Phase Smart Metering Design

Hardware Specs



The Math

Active Energy:

$$W_h = \int u(t) \cdot i(t)\, dt$$

Reactive Energy:

$$var_h = \int u(t-90°) \cdot i(t)\, dt$$

RMS Current:

$$I_{rms} = \sqrt{\frac{1}{T}\int i(t)^2\, dt}$$

Features
Tamper Detection: Magnetic / Cover Open

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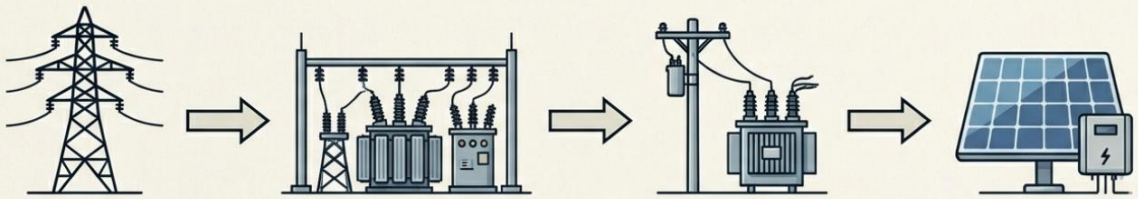
Electrical Infrastructure & Grid Management



Network Integration

Data Framework: Cisco Catalyst Switches (4x 25 Uplink)
SCADA Gateway: GE D20 Station (Eskom/City Power WAN)

Software Systems: ATM Transaction & Security Logic

System Logic: VB.NET + MS Access

Code & Security

```
Public Class Transaction_Box
    Const pin As Integer = 9343
    Const service_charge As Decimal = 6.5

    Private Sub Button1_Click()
        If PinBox.Text = "9343" Then
            TransactionGroup.Enabled = True
            ' Secure PIN Pad (EPP) Protocol Active
        Else
            MsgBox("Incorrect PIN", vbExclamation)
            BlockAccount()
        End If
    End Sub
End Class
```

- Crypto Processor Integration
- Encrypting PIN Pad (EPP)
- Automatic Account Blocking

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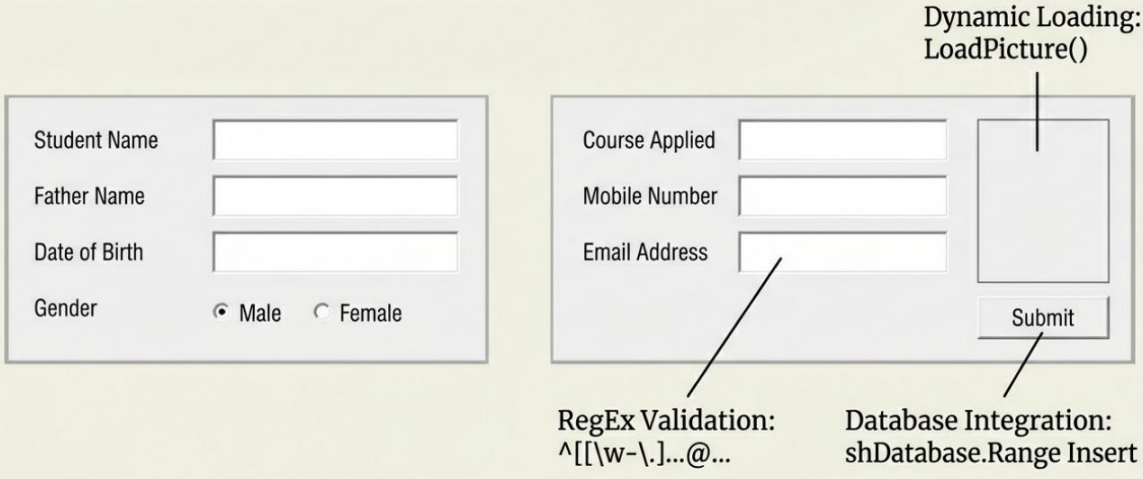
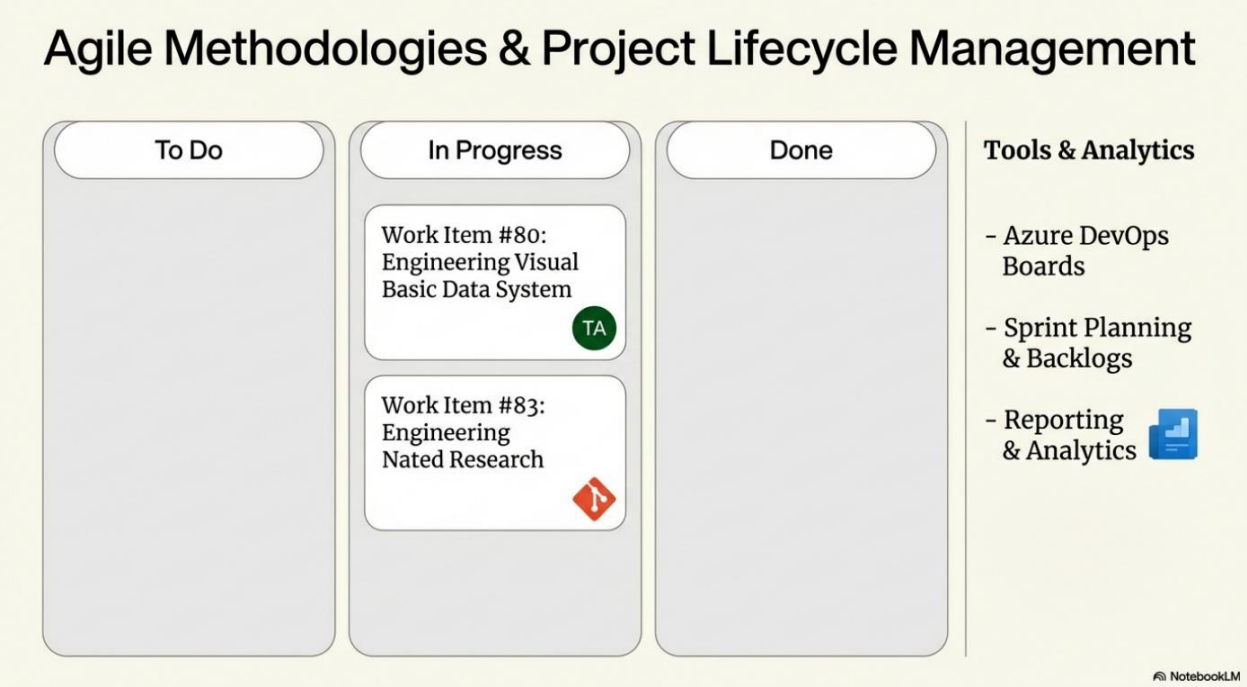
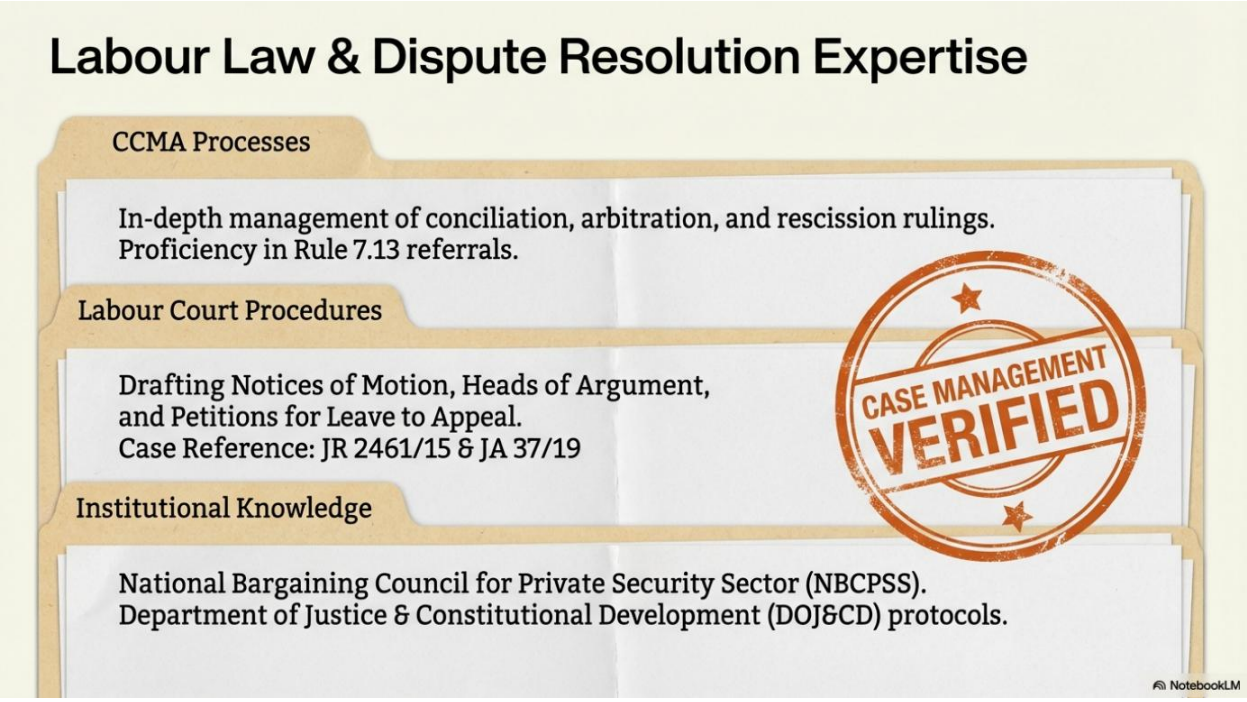
Automated Data Management Systems

VBA & Excel UserForm Architecture



NotebookLM


Agile Methodologies & Project Lifecycle Management
To Do
In Progress
Done
Work Item #80: Engineering Visual Basic Data System
TA
Work Item #83: Engineering Nated Research
Tools & Analytics
- Azure DevOps Boards
- Sprint Planning & Backlogs
- Reporting & Analytics
NotebookLM


Labour Law & Dispute Resolution Expertise
CCMA Processes
In-depth management of conciliation, arbitration, and rescission rulings.
Proficiency in Rule 7.13 referrals.
Labour Court Procedures
Drafting Notices of Motion, Heads of Argument, and Petitions for Leave to Appeal.
Case Reference: JR 2461/15 & JA 37/19
CASE MANAGEMENT VERIFIED
Institutional Knowledge
National Bargaining Council for Private Security Sector (NBCPSS).
Department of Justice & Constitutional Development (DOJ&CD) protocols.
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Civil Procedure & Protection Frameworks

Legislative Core

****Domestic Violence Act 116 of 1998****
Defines domestic relationships, scope of protection, and enforcement mechanisms.

Procedural Application

Drafting Form 2 Applications and Founding Affidavits.
Execution of Warrants of Arrest for Contempt of Court.

Extended Frameworks

****Protection from Harassment Act 17 of 2011****
Application for victims of stalking and non-domestic harassment.

Case Study

Case URN: 4702024FCV001046
Status: Civil Procedure / Protection Order Application
Outcome: Screen Application & Interim Order Management

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Data Privacy & Compliance (POPIA)

Protection of Personal Information Act Strategy

Information Officer

Registration with Regulator, Development of internal privacy policies.

Data Processing Principles

Lawful collection, Storage limitation, Accountability protocols.

Special Personal Information

Handling biometrics, health data, and criminal history within employment equity frameworks.

Risk Management

Section 19 Security Safeguards: Firewalls, Access Control, Breach Notification.

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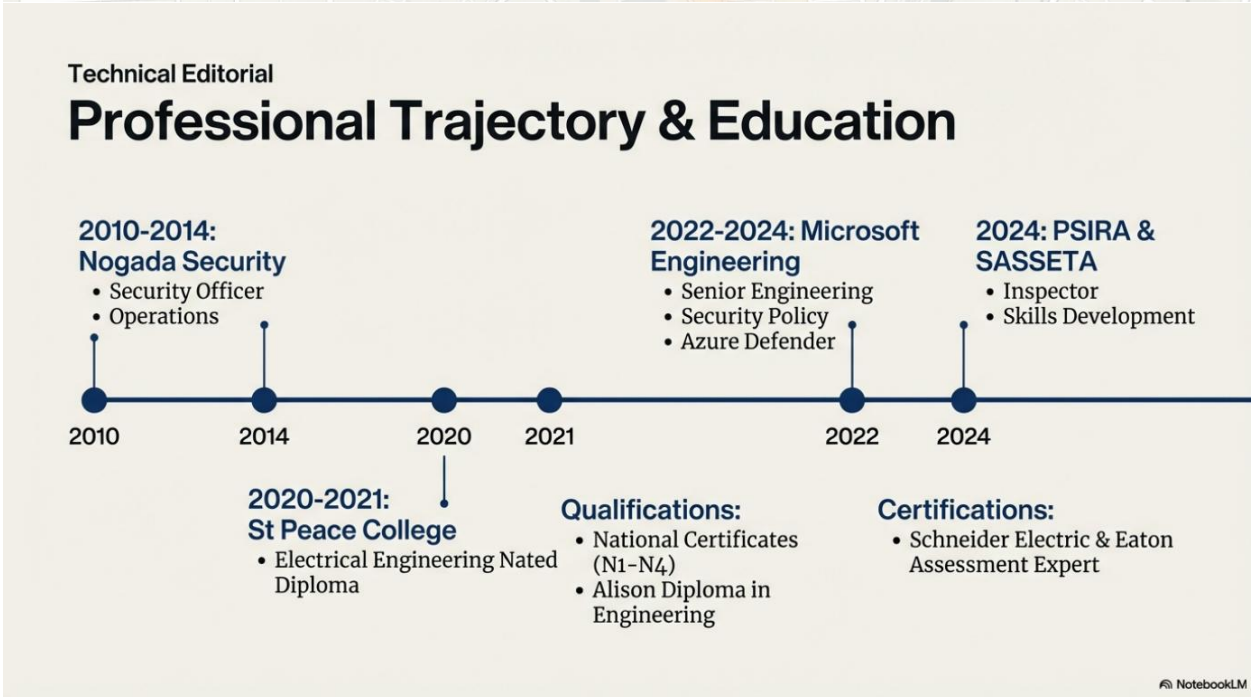
Applied Policing & Public Safety Strategy
Crime Analysis & Prevention
Simulating crime data entry (MIS tools) and developing heatmaps for patrol allocation.
• Background: Applied Policing and Crime Resolution
Operational Tactics
Sector Policing management, Incident Collision Scenarios, and Traffic Safety.
• Applications in Law Enforcement / Crime Prevention
Investigation & Engagement
Principles of Police Investigation, Research Methods for Patrols, and Community Engagement.
• Research Methods for Conducting Patrols
NotebookLM


Technical Editorial
Professional Trajectory & Education
2010-2014: Nogada Security
• Security Officer
• Operations
2014
2020-2021: St Peace College
• Electrical Engineering Nated Diploma
2020
2021
Qualifications:
• National Certificates (N1-N4)
• Alison Diploma in Engineering
2022-2024: Microsoft Engineering
• Senior Engineering
• Security Policy
• Azure Defender
2022
2024: PSIRA & SASSETA
• Inspector
• Skills Development
2024
Certifications:
• Schneider Electric & Eaton Assessment Expert
NotebookLM

Technical & Regulatory Skills Matrix

HARDWARE & ENGINEERING	SOFTWARE & CODE	LEGAL & REGULATORY
• PLCs & Ladder Logic	Visual Basic (VB.NET)	Labour Relations Act (LRA)
• VSDs (Power XLD)	C# & VBA	CCMA Rules 7.13
• Smart Metering (MCU/GPRS)	SQL & Database Management	POPIA Compliance
• Substation Design	Azure DevOps	Domestic Violence Act
• PV Solar Grid Integration	Ladder Logic Programming	PSIRA Regulations

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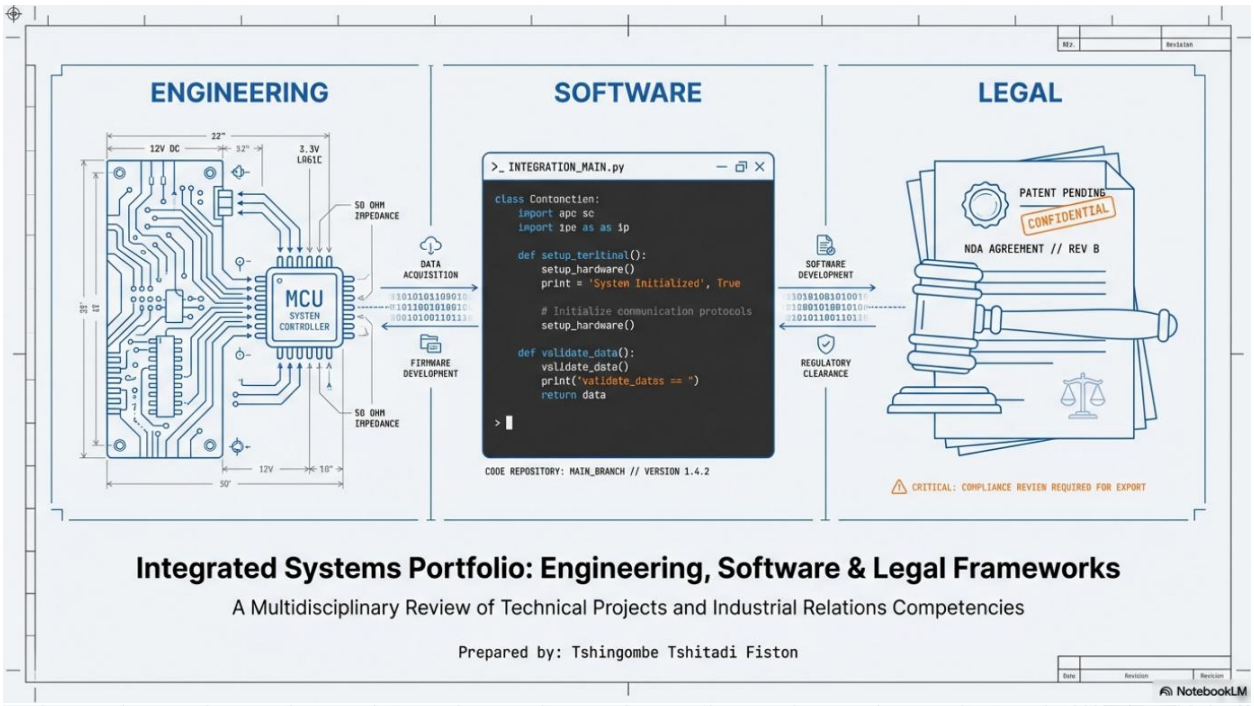
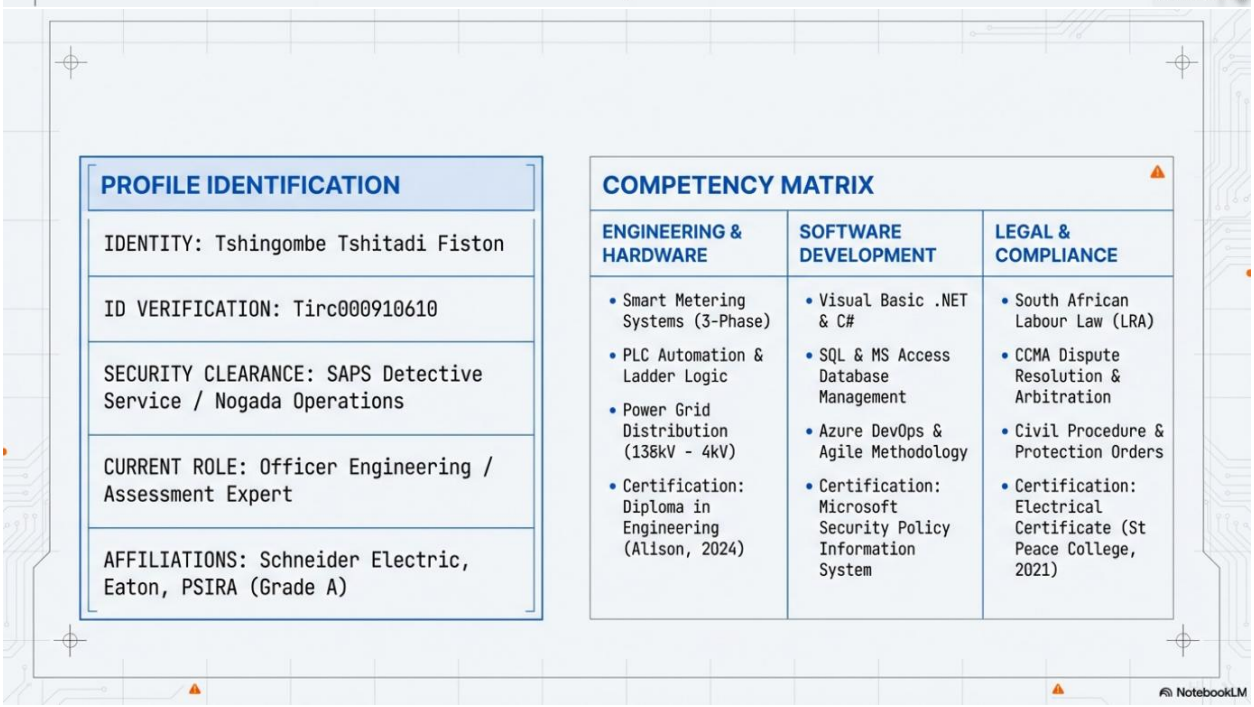
The Multidisciplinary Advantage

A unique professional profile merging the precision of Electrical Engineering, the logic of Software Development, and the rigour of Legal Advocacy. Ready to deploy cross-functional expertise for complex operational challenges.

Tshingombe Tshitadi Fiston
Email: tshingombefiston@gmail.com
Phone: 072 529 8946
Location: Johannesburg, Gauteng (Hillbrow / Yeoville)

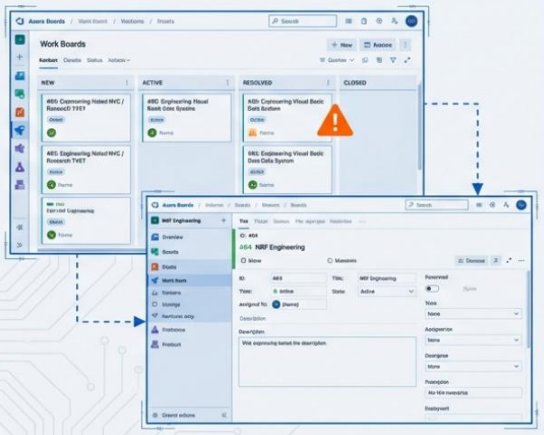
NotebookLM


ENGINEERING
SOFTWARE
LEGAL
12V DC
3.3V LA61C
50 OHM IMPEDANCE
MCU
SYSTEM CONTROLLER
DATA ACQUISITION
FIRMWARE DEVELOPMENT
>_ INTEGRATION_MAIN.py
class Contonctien:
import apc sc
import ipe as as ip
def setup_teritinal():
setup_hardware()
print = 'System Initialized', True
# Initialize communication protocols
setup_hardware()
def validate_data():
vslidste_dsta()
print('vatidete_datss == ')
return data
CODE REPOSITORY: MAIN_BRANCH // VERSION 1.4.2
SOFTWARE DEVELOPMENT
REGULATORY CLEARANCE
PATENT PENDING
CONFIDENTIAL
NDA AGREEMENT // REV B
CRITICAL: COMPLIANCE REVIEW REQUIRED FOR EXPORT
Integrated Systems Portfolio: Engineering, Software & Legal Frameworks
A Multidisciplinary Review of Technical Projects and Industrial Relations Competencies
Prepared by: Tshingombe Tshitadi Fiston
NotebookLM


PROFILE IDENTIFICATION
IDENTITY: Tshingombe Tshitadi Fiston
ID VERIFICATION: Tirc000910610
SECURITY CLEARANCE: SAPS Detective Service / Nogada Operations
CURRENT ROLE: Officer Engineering / Assessment Expert
AFFILIATIONS: Schneider Electric, Eaton, PSIRA (Grade A)
COMPETENCY MATRIX
ENGINEERING & HARDWARE
• Smart Metering Systems (3-Phase)
• PLC Automation & Ladder Logic
• Power Grid Distribution (138kV - 4kV)
• Certification: Diploma in Engineering (Alison, 2024)
SOFTWARE DEVELOPMENT
• Visual Basic .NET & C#
• SQL & MS Access Database Management
• Azure DevOps & Agile Methodology
• Certification: Microsoft Security Policy Information System
LEGAL & COMPLIANCE
• South African Labour Law (LRA)
• CCMA Dispute Resolution & Arbitration
• Civil Procedure & Protection Orders
• Certification: Electrical Certificate (St Peace College, 2021)
NotebookLM

AGILE METHODOLOGY & WORK ITEM TRACKING

VISUAL EVIDENCE



METHODOLOGY DETAILS

PLATFORM: Azure DevOps / Boards
FRAMEWORK: Agile / Scrum
ACTIVE SPRINT ITEMS:
- #80: Engineering Visual Basic Data System
- #83: Engineering Nated NVC / Research TVET
- #84: NRF Engineering

WORKFLOW STATUS:
- New -> Active -> Resolved -> Closed
- **Velocity Tracking:** Engineering Data Systems
- **Traceability:** Full audit trail from requirement to deployment.

NotebookLM

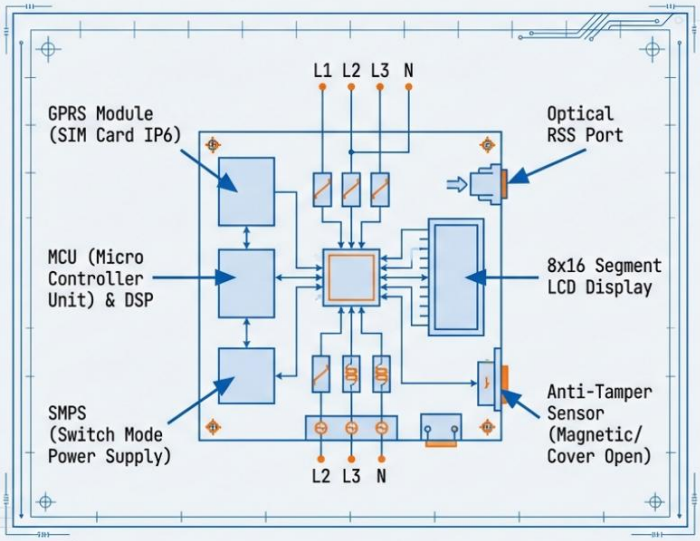
Engineering Architecture: Three-Phase Smart Metering

DEVICE TYPE:
Three-Phase AC Static Watt-Hour Smart Meter

VOLTAGE:
240 VAC ±20%

CURRENT:
0-60A (10A Nominal)

FREQUENCY:
50Hz


L1 L2 L3 N
GPRS Module (SIM Card IP6)
Optical RSS Port
MCU (Micro Controller Unit) & DSP
8x16 Segment LCD Display
SMPS (Switch Mode Power Supply)
Anti-Tamper Sensor (Magnetic/ Cover Open)
L2 L3 N

Measurement Logic

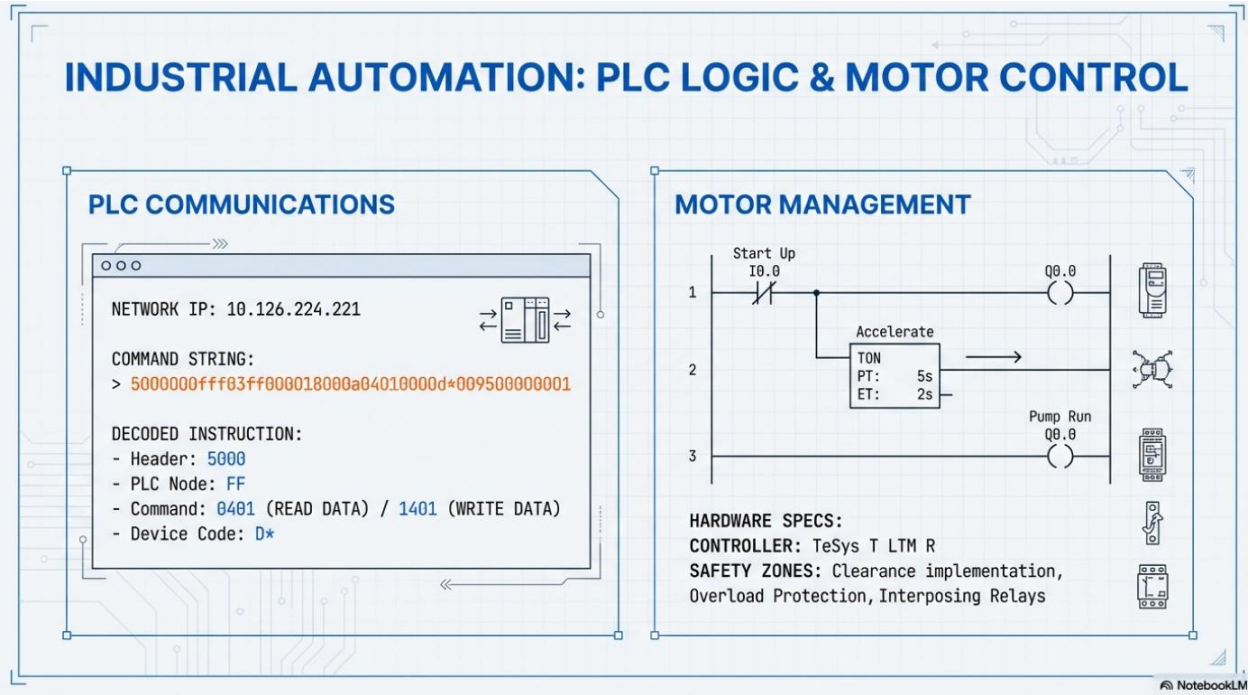
Active Energy:

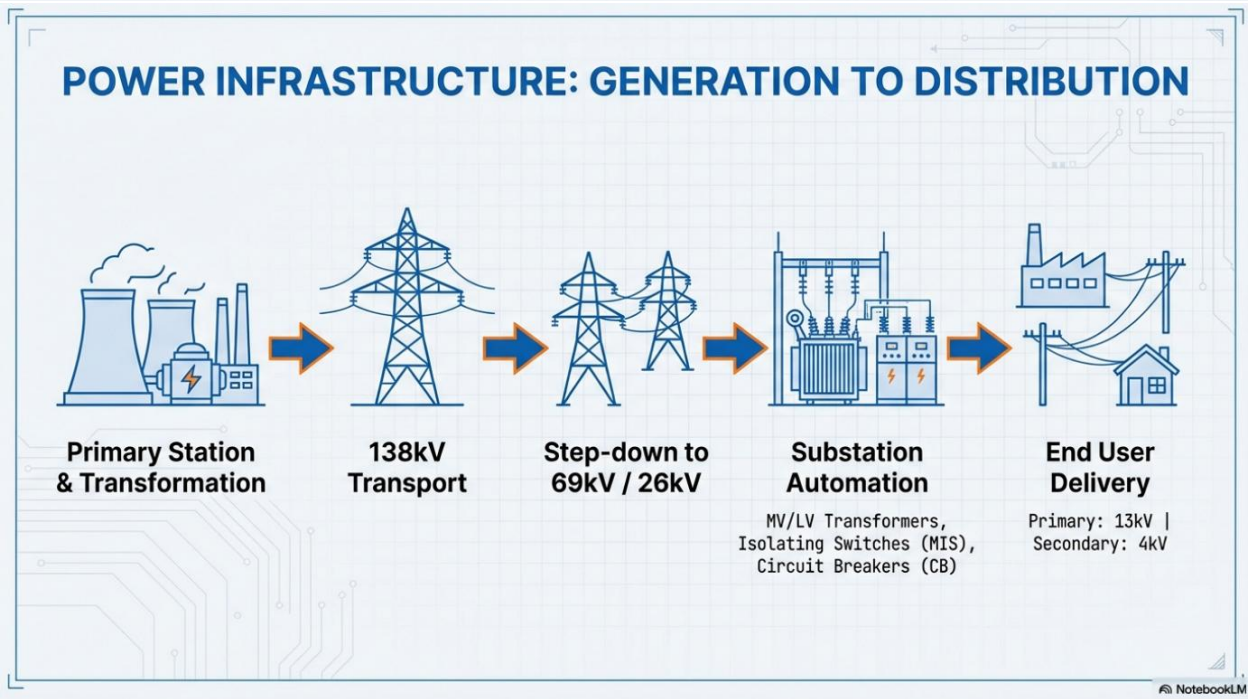
$$\int u(t) \cdot i(t)\, dt$$

Reactive Energy:

$$\int u(t\text{-}90°) \cdot i(t)\, dt$$

NotebookLM


INDUSTRIAL AUTOMATION: PLC LOGIC & MOTOR CONTROL
PLC COMMUNICATIONS
NETWORK IP: 10.126.224.221
COMMAND STRING:
> 5000000fff03ff000018000a04010000d*009500000001
DECODED INSTRUCTION:
- Header: 5000
- PLC Node: FF
- Command: 0401 (READ DATA) / 1401 (WRITE DATA)
- Device Code: D*
MOTOR MANAGEMENT
Start Up
I0.0
Q0.0
Accelerate
TON
PT: 5s
ET: 2s
Pump Run
Q0.0
1
2
3
HARDWARE SPECS:
CONTROLLER: TeSys T LTM R
SAFETY ZONES: Clearance implementation, Overload Protection, Interposing Relays
NotebookLM


POWER INFRASTRUCTURE: GENERATION TO DISTRIBUTION
Primary Station & Transformation
138kV Transport
Step-down to 69kV / 26kV
Substation Automation
MV/LV Transformers, Isolating Switches (MIS), Circuit Breakers (CB)
End User Delivery
Primary: 13kV | Secondary: 4kV
NotebookLM

SOFTWARE SYSTEMS: WEB-BASED CRIME MANAGEMENT MIS

INTERFACE VISUALIZATION

PROBLEM STATEMENT

Transition from manual, paper-based dockets to a centralized digital database for Samara City Police Station.

CORE MODULES

- Digital Docketing & Incident Logging
- Traffic Management & Collision Scenarios
- Heatmap Generation & Patrol Allocation

COMMUNITY INTEGRATION

- Online Complaint Filing
- Community Policing Engagement Tools

NotebookLM

FINANCIAL SYSTEMS: ATM SIMULATION ARCHITECTURE

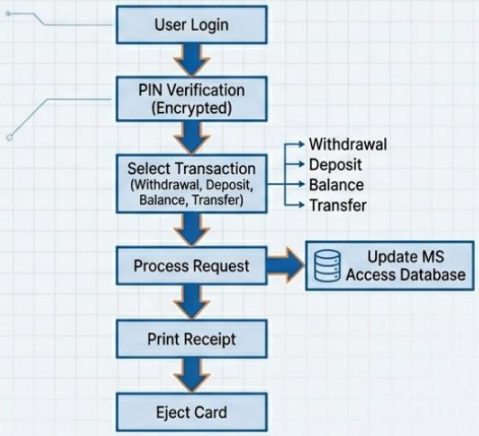
VISUAL BASIC LOGIC

```
Public Class TransactionBox
    Const PIN as Integer = 9343
    Const Service_Charge as Decimal = 6.5
    Dim Balance as Decimal = 150.00

    Private Function Deposit(ByRef Amount as Decimal)
        Balance = Amount
        Return Balance
    End Function

    Private Sub ValidatePIN()
        If PinBox.Text <> "9343" Then
            MsgBox("Incorrect PIN", Exclamation)
            PinBox.Enabled = False
        End If
    End Sub
End Class
```

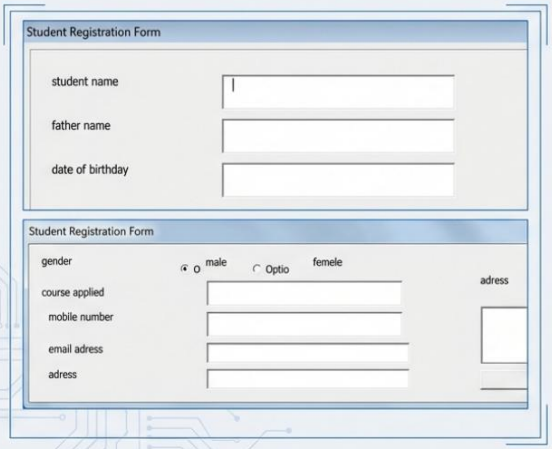
USER FLOW DIAGRAM



NotebookLM

DATABASE ADMINISTRATION: AUTOMATED REGISTRATION SYSTEMS

FORM DESIGN



BACKEND AUTOMATION

1. Data Validation (Regex)

Ensuring data integrity through pattern matching:

```
Pattern = "^[\w-\.]{1,}\@([\da-zA-Z-]{1,}\.){1,}"
```

2. Database Connectivity

Integration with MS Access and SQL backends for persistent record storage.

3. Dynamic Image Handling

Logic for uploading and rendering student identification photos (`LoadPicture`).

```
Pattern = "^[\w-\.]{1,}\@(\da-zA-Z-]{1,}\.){1,}"
```

4. Automation Logic

Auto-finding next empty database row:

```
iRow = shDatabase.Range("A" & Rows.Count).End(xlUp).Row + 1
```

NotebookLM

REGULATORY COMPLIANCE FRAMEWORK: POPIA

DATA PROCESSING MANDATES

- **Purpose Specification**: Data collected for specific, lawful purpose.
- **Limitation**: Process only what is necessary.
- **Consent**: Must be obtained directly from the Data Subject.

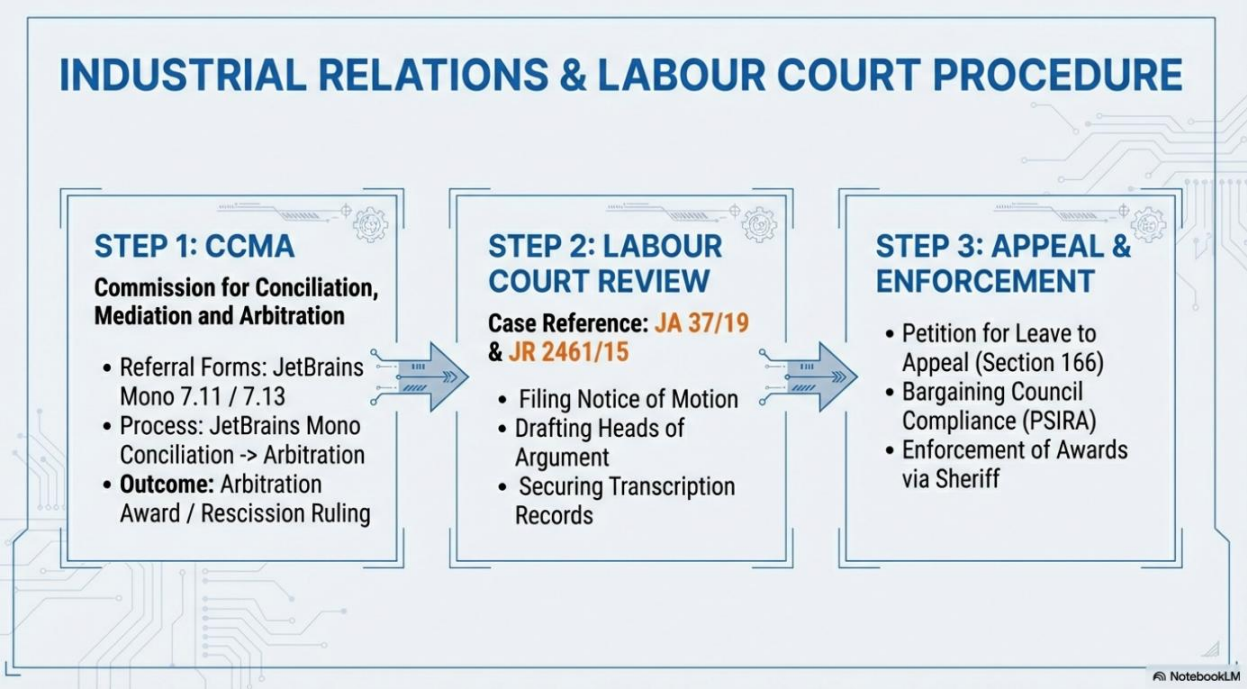
EMPLOYER RESPONSIBILITIES

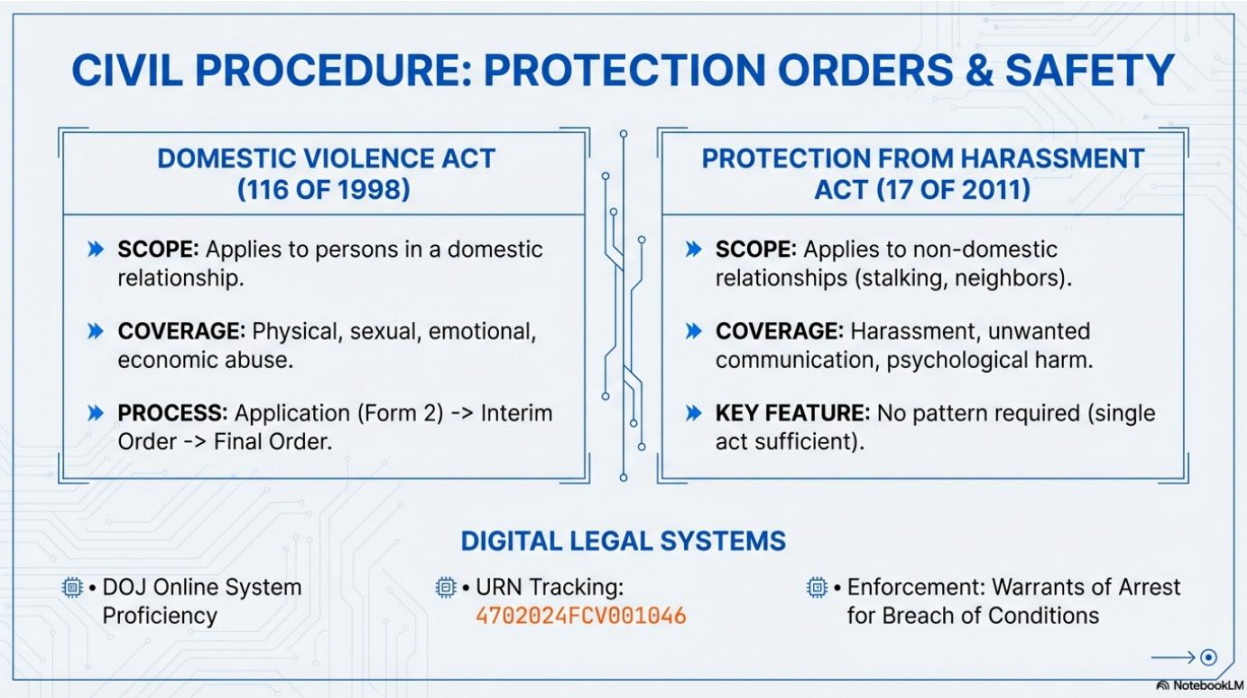
- Appointment of Information Officer.
- Implementation of Security Safeguards (Firewalls, Access Control).
- Mandatory Breach Notification to Regulator.

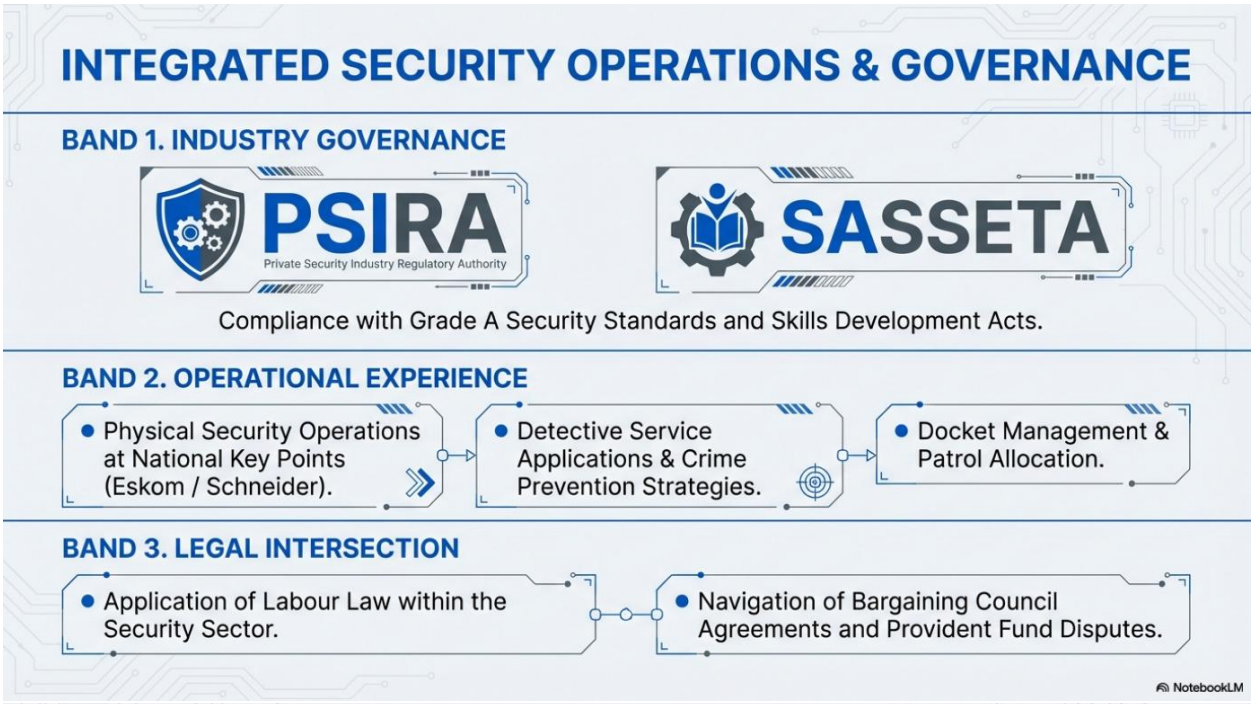
RISK & LIABILITY

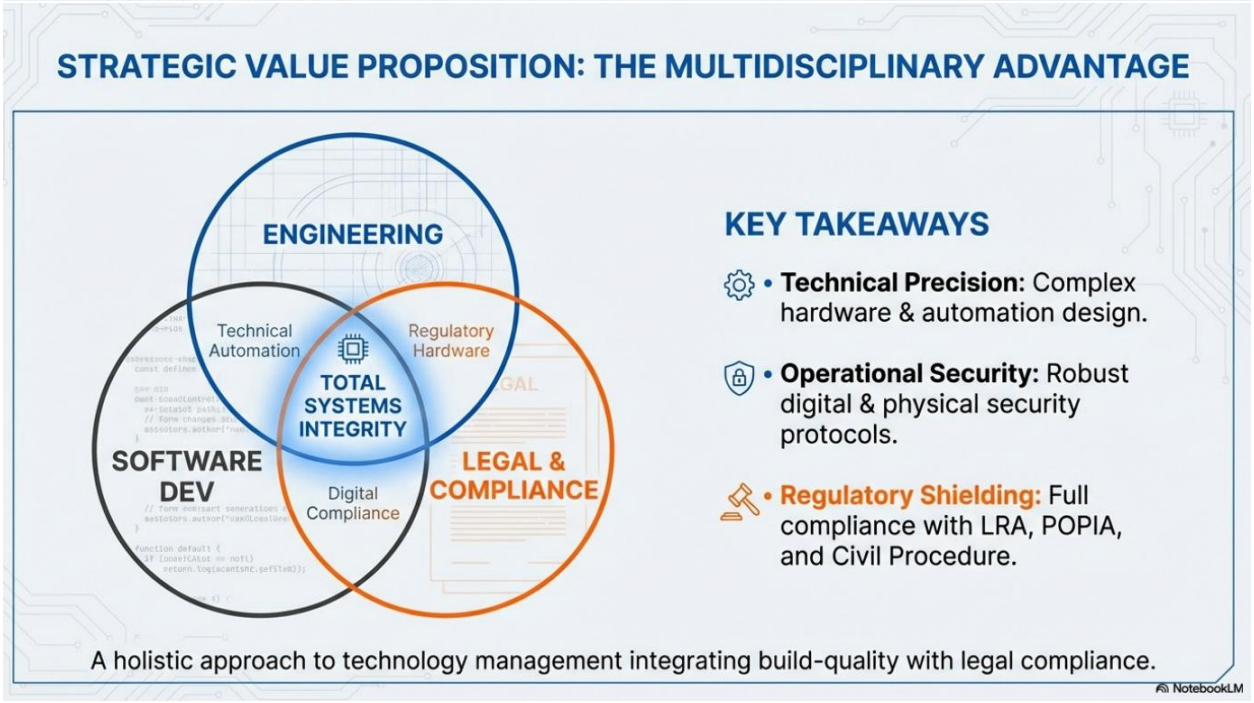
- Fines: **R1 Million to R10 Million**.
- **Criminal Liability**: **Imprisonment up to 10 years**.
- Employee Rights: Access, Correction, and Objection.

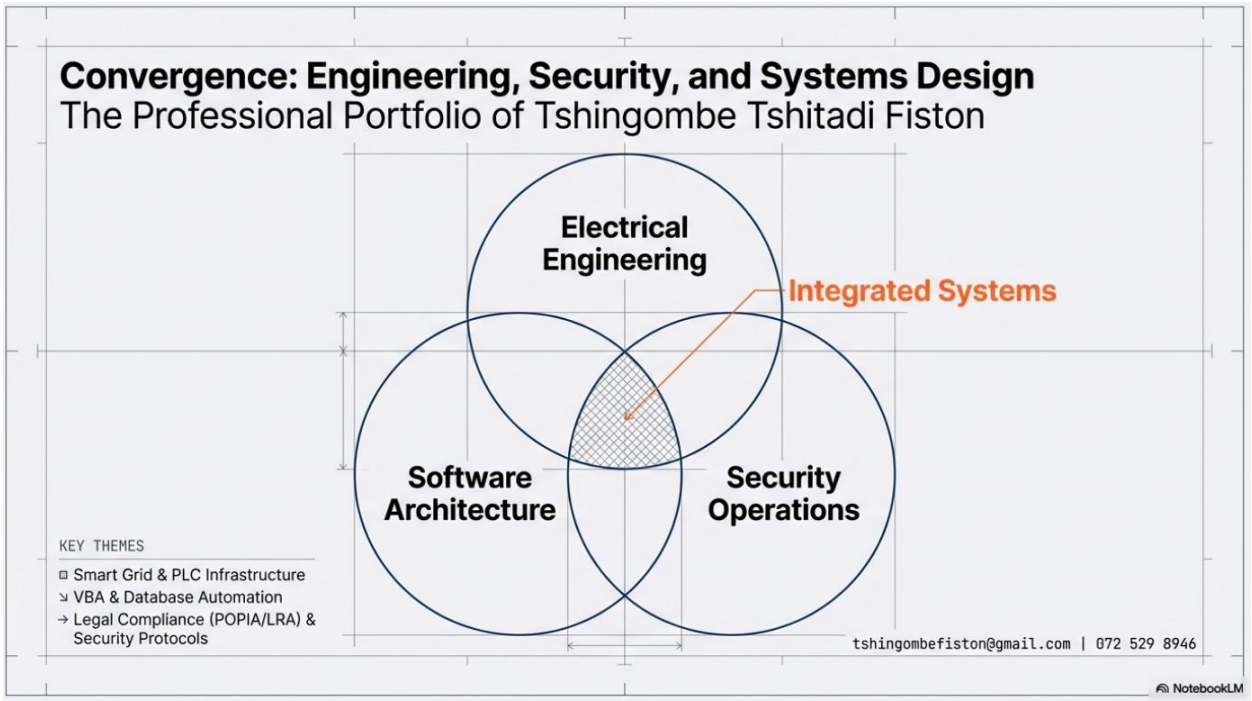
NotebookLM

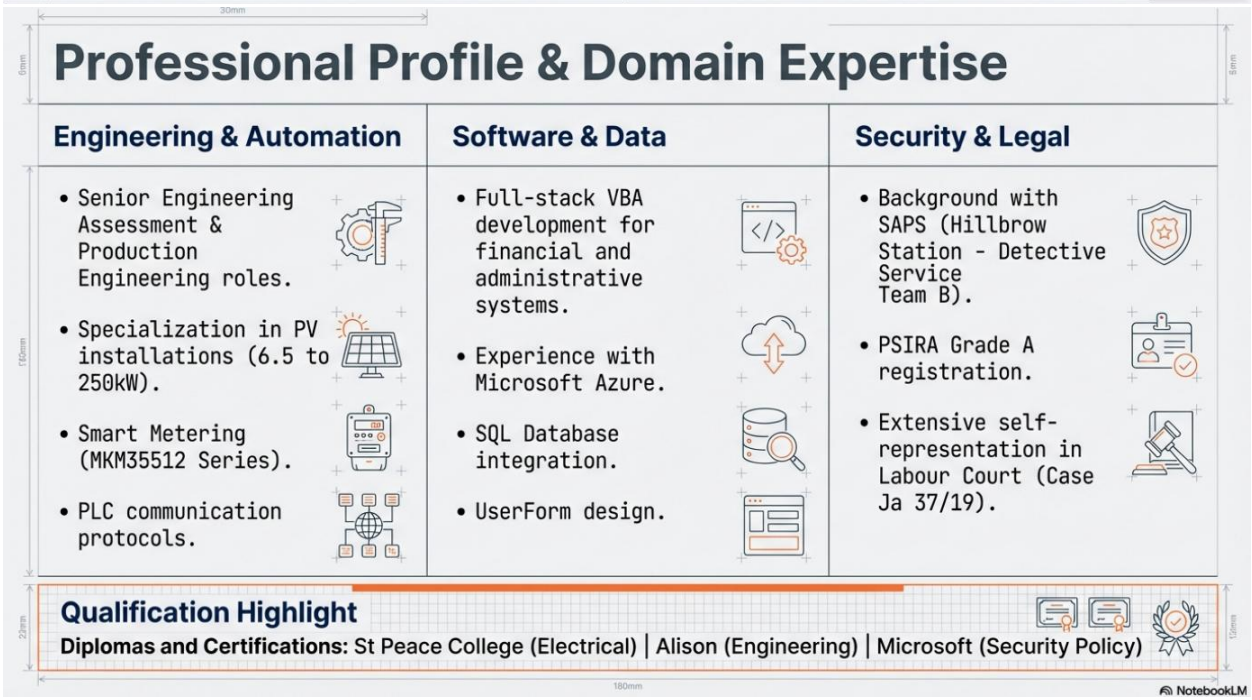

INDUSTRIAL RELATIONS & LABOUR COURT PROCEDURE
STEP 1: CCMA
Commission for Conciliation, Mediation and Arbitration
• Referral Forms: JetBrains Mono 7.11 / 7.13
• Process: JetBrains Mono Conciliation -> Arbitration
• Outcome: Arbitration Award / Rescission Ruling
STEP 2: LABOUR COURT REVIEW
Case Reference: JA 37/19 & JR 2461/15
• Filing Notice of Motion
• Drafting Heads of Argument
• Securing Transcription Records
STEP 3: APPEAL & ENFORCEMENT
• Petition for Leave to Appeal (Section 166)
• Bargaining Council Compliance (PSIRA)
• Enforcement of Awards via Sheriff
NotebookLM


CIVIL PROCEDURE: PROTECTION ORDERS & SAFETY
DOMESTIC VIOLENCE ACT (116 OF 1998)
SCOPE: Applies to persons in a domestic relationship.
COVERAGE: Physical, sexual, emotional, economic abuse.
PROCESS: Application (Form 2) -> Interim Order -> Final Order.
PROTECTION FROM HARASSMENT ACT (17 OF 2011)
SCOPE: Applies to non-domestic relationships (stalking, neighbors).
COVERAGE: Harassment, unwanted communication, psychological harm.
KEY FEATURE: No pattern required (single act sufficient).
DIGITAL LEGAL SYSTEMS
• DOJ Online System Proficiency
• URN Tracking: 4702024FCV001046
• Enforcement: Warrants of Arrest for Breach of Conditions
NotebookLM


INTEGRATED SECURITY OPERATIONS & GOVERNANCE
BAND 1. INDUSTRY GOVERNANCE
PSIRA
Private Security Industry Regulatory Authority
SASSETA
Compliance with Grade A Security Standards and Skills Development Acts.
BAND 2. OPERATIONAL EXPERIENCE
Physical Security Operations at National Key Points (Eskom / Schneider).
Detective Service Applications & Crime Prevention Strategies.
Docket Management & Patrol Allocation.
BAND 3. LEGAL INTERSECTION
Application of Labour Law within the Security Sector.
Navigation of Bargaining Council Agreements and Provident Fund Disputes.
NotebookLM


STRATEGIC VALUE PROPOSITION: THE MULTIDISCIPLINARY ADVANTAGE
ENGINEERING
Technical Automation
Regulatory Hardware
TOTAL SYSTEMS INTEGRITY
SOFTWARE DEV
LEGAL & COMPLIANCE
Digital Compliance
KEY TAKEAWAYS
• Technical Precision: Complex hardware & automation design.
• Operational Security: Robust digital & physical security protocols.
• Regulatory Shielding: Full compliance with LRA, POPIA, and Civil Procedure.
A holistic approach to technology management integrating build-quality with legal compliance.
NotebookLM


Convergence: Engineering, Security, and Systems Design
The Professional Portfolio of Tshingombe Tshitadi Fiston
Electrical Engineering
Integrated Systems
Software Architecture
Security Operations
KEY THEMES
Smart Grid & PLC Infrastructure
VBA & Database Automation
Legal Compliance (POPIA/LRA) & Security Protocols
tshingombefiston@gmail.com | 072 529 8946
NotebookLM


Professional Profile & Domain Expertise
Engineering & Automation
Senior Engineering Assessment & Production Engineering roles.
Specialization in PV installations (6.5 to 250kW).
Smart Metering (MKM35512 Series).
PLC communication protocols.
Software & Data
Full-stack VBA development for financial and administrative systems.
Experience with Microsoft Azure.
SQL Database integration.
UserForm design.
Security & Legal
Background with SAPS (Hillbrow Station - Detective Service Team B).
PSIRA Grade A registration.
Extensive self-representation in Labour Court (Case Ja 37/19).
Qualification Highlight
Diplomas and Certifications: St Peace College (Electrical) | Alison (Engineering) | Microsoft (Security Policy)
NotebookLM

Smart Grid Infrastructure: MKM35512 Series

Parameter	Specification
Type	Three Phase AC Static Watt Hour Smart Meter
Nominal Voltage	240 VAC ±20%
Current Range	0-60A (Dynamic range up to 72A)
Frequency	50Hz ±5%
Accuracy	Class 0.5 (IEC 62056 Standard)
Connectivity	GPRS Module (1x SIM Card), Infrared Interface (9600 baud), PLC
Measurement Metrics	V, A, kW, kvar, kVA, kWh (Import/Export)

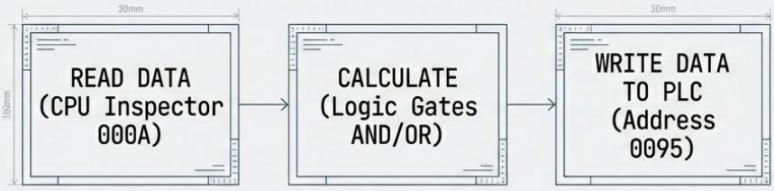
Feature Highlight

Power Management Specs:

- Low power real-time metering library.
- Internal battery (12uA standby power).
- Protocol: PLC Communication.

NotebookLM

Industrial Automation: PLC Logic & Communication.



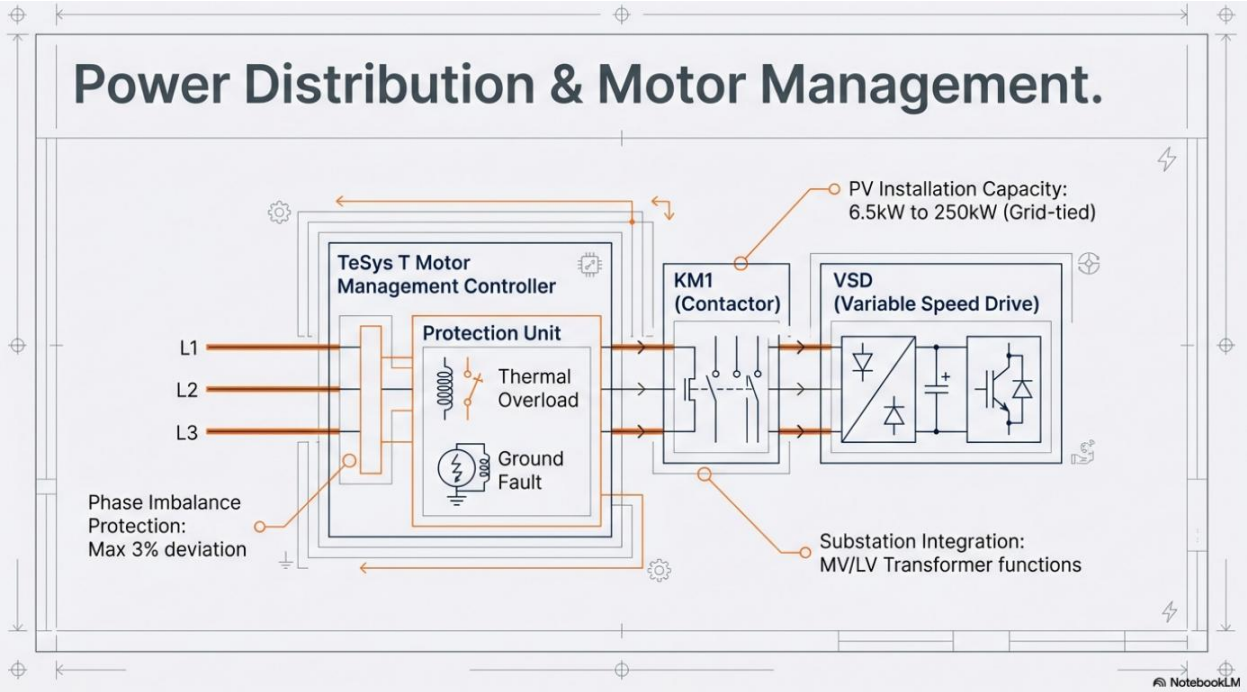
PLC Command Sequence

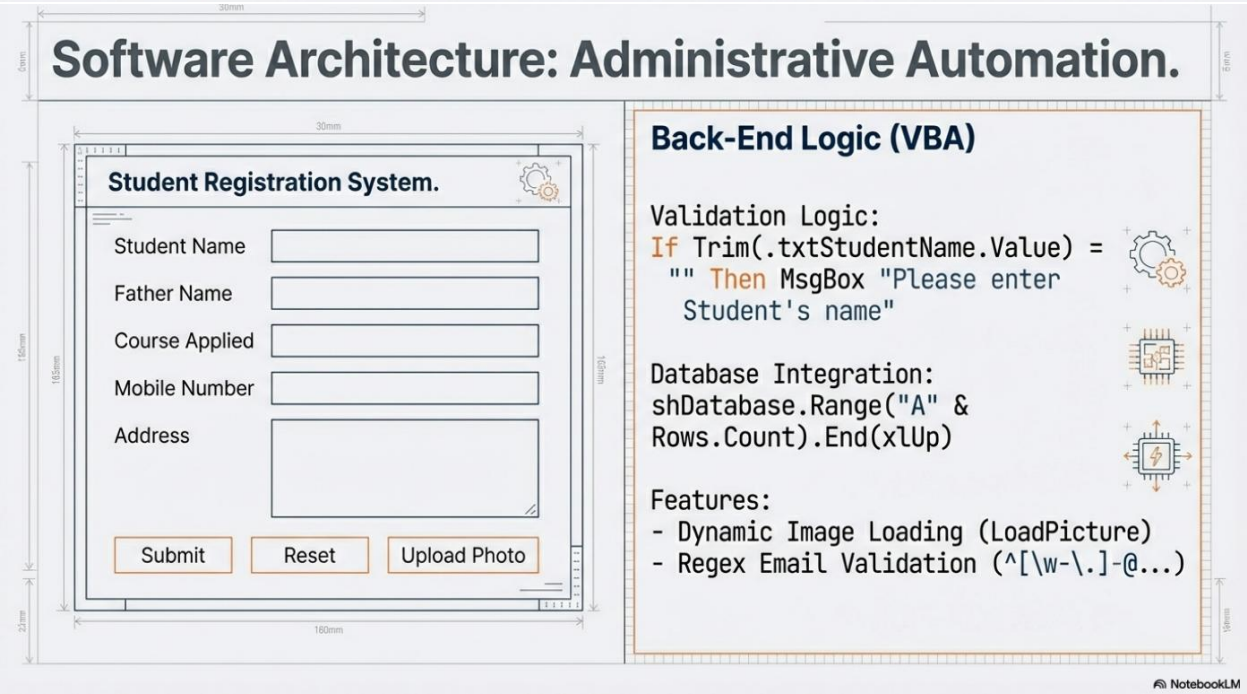
```
Cmd=cmd+"5000" //sub head
Cmd=cmd+"FF"   //plc number
Cmd=cmd+"03ff" //demand object
Cmd=cmd+"0401" //read command
```

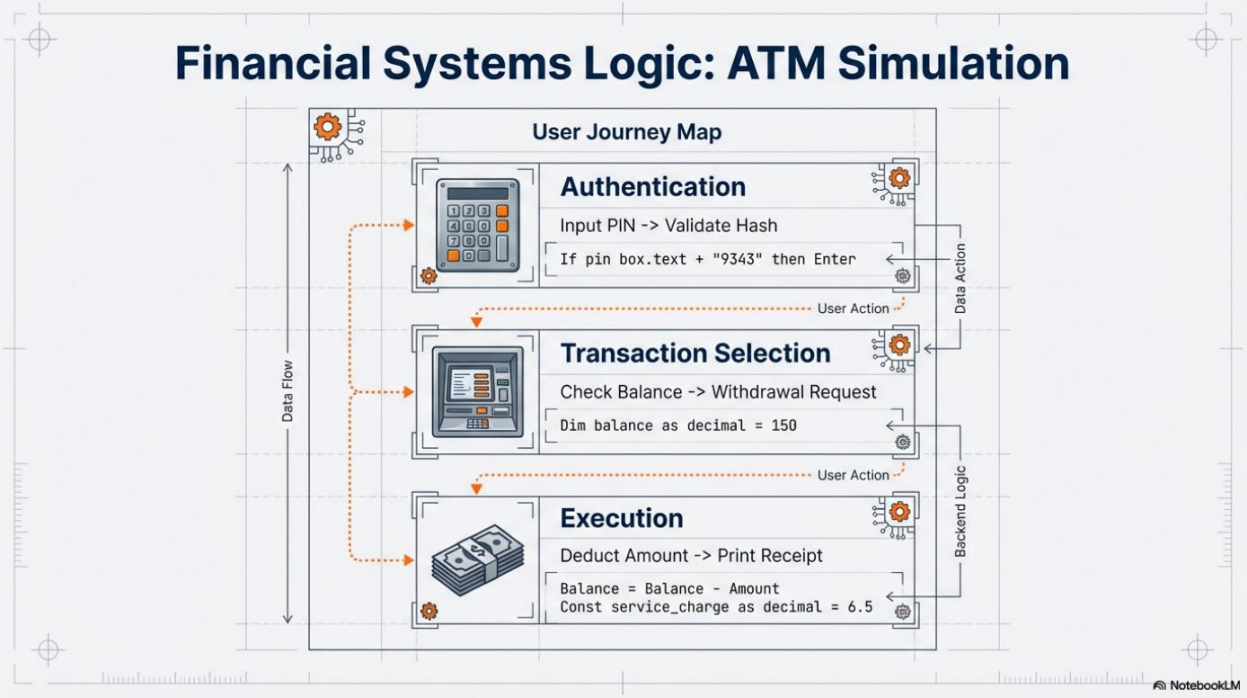
Network Specifications

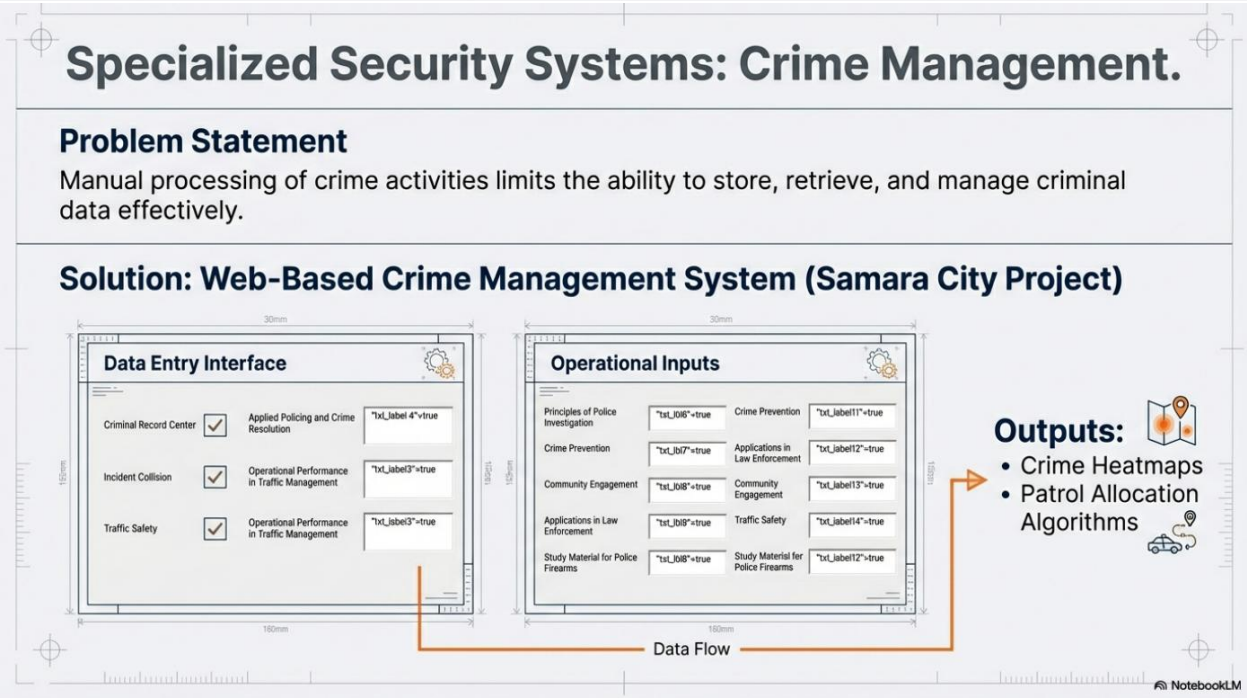
- IP Address Block: 10.126.224.221
- Base Address: 0002
- Functions: Hexadecimal conversion, Shift Register Circuits.

NotebookLM


Power Distribution & Motor Management.
PV Installation Capacity:
6.5kW to 250kW (Grid-tied)
TeSys T Motor
Management Controller
KM1
(Contactor)
VSD
(Variable Speed Drive)
Protection Unit
L1
L2
L3
Thermal
Overload
Ground
Fault
Phase Imbalance
Protection:
Max 3% deviation
Substation Integration:
MV/LV Transformer functions
NotebookLM


Software Architecture: Administrative Automation.
Student Registration System.
Student Name
Father Name
Course Applied
Mobile Number
Address
Submit
Reset
Upload Photo
Back-End Logic (VBA)
Validation Logic:
If Trim(.txtStudentName.Value) =
"" Then MsgBox "Please enter
Student's name"
Database Integration:
shDatabase.Range("A" &
Rows.Count).End(xlUp)
Features:
- Dynamic Image Loading (LoadPicture)
- Regex Email Validation (^[\w-\.]-@...)
NotebookLM


Financial Systems Logic: ATM Simulation
User Journey Map
Authentication
Input PIN -> Validate Hash
If pin box.text + "9343" then Enter
User Action
Transaction Selection
Check Balance -> Withdrawal Request
Dim balance as decimal = 150
User Action
Execution
Deduct Amount -> Print Receipt
Balance = Balance - Amount
Const service_charge as decimal = 6.5
Data Flow
Data Action
Backend Logic
NotebookLM


Specialized Security Systems: Crime Management.
Problem Statement
Manual processing of crime activities limits the ability to store, retrieve, and manage criminal data effectively.
Solution: Web-Based Crime Management System (Samara City Project)
Data Entry Interface
Criminal Record Center
Applied Policing and Crime Resolution
Incident Collision
Operational Performance in Traffic Management
Traffic Safety
Operational Performance in Traffic Management
Operational Inputs
Principles of Police Investigation
Crime Prevention
Crime Prevention
Applications in Law Enforcement
Community Engagement
Community Engagement
Applications in Law Enforcement
Traffic Safety
Study Material for Police Firearms
Study Material for Police Firearms
Data Flow
Outputs:
• Crime Heatmaps
• Patrol Allocation Algorithms
NotebookLM

Operational Context: SAPS & Detective Services.

Detective Service: Economic Crimes (Investigation Team B)

Location: Hillbrow Station, Gauteng
Reference: SAPS Ref GP 49/3/17 & GP 38/3/17

Operational Competencies.

Docket Management
Ensuring crime information is accurately reflected on the Crime Administration System (CAS).
Sector Policing
Managing crime prevention operations and allocating physical resources to high-risk zones.
Investigation Protocols
Principles of Police Investigation, Crime Scene Management, and Evidence Collection.

NotebookLM

Regulatory Compliance: POPIA Framework.

Protection of Personal Information Act of 2013 Compliance Strategy.

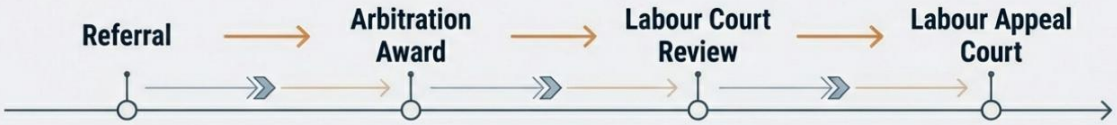
Compliance Checklist
Officer Appointment
Information Officer registered with the Regulator.
Processing Limits
Data collected for explicit, specific, and lawful purposes only.
Data Lifecycle
Information destroyed after recruitment or purpose finalization.
Special Information Protocols
Strict controls for health, biometric, and criminal history data.

Applied to Student Registration Systems and Security Operations.

NotebookLM

Legal Framework & Dispute Resolution.

Case Study: Tshingombe Tshitadi Fiston v. Elizabeth Lerumu & CCMA (Case Ja 37/19).



Competencies Demonstrated

- **Drafting:** Notice of Motion, Founding Affidavits, Heads of Argument.
- **Procedural Knowledge:** Section 145 (LRA) Reviews, Rescission Rulings, Condonation applications.
- **Institutions:** CCMA, Labour Court, DOJ.

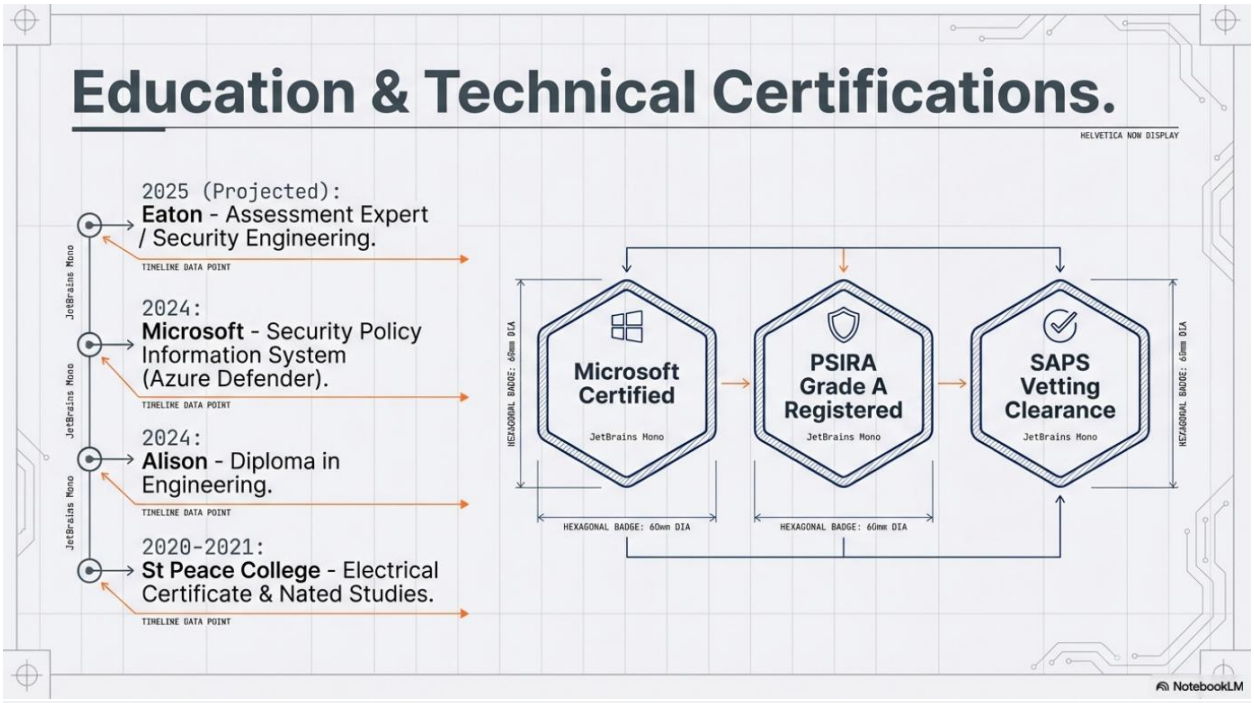
NotebookLM

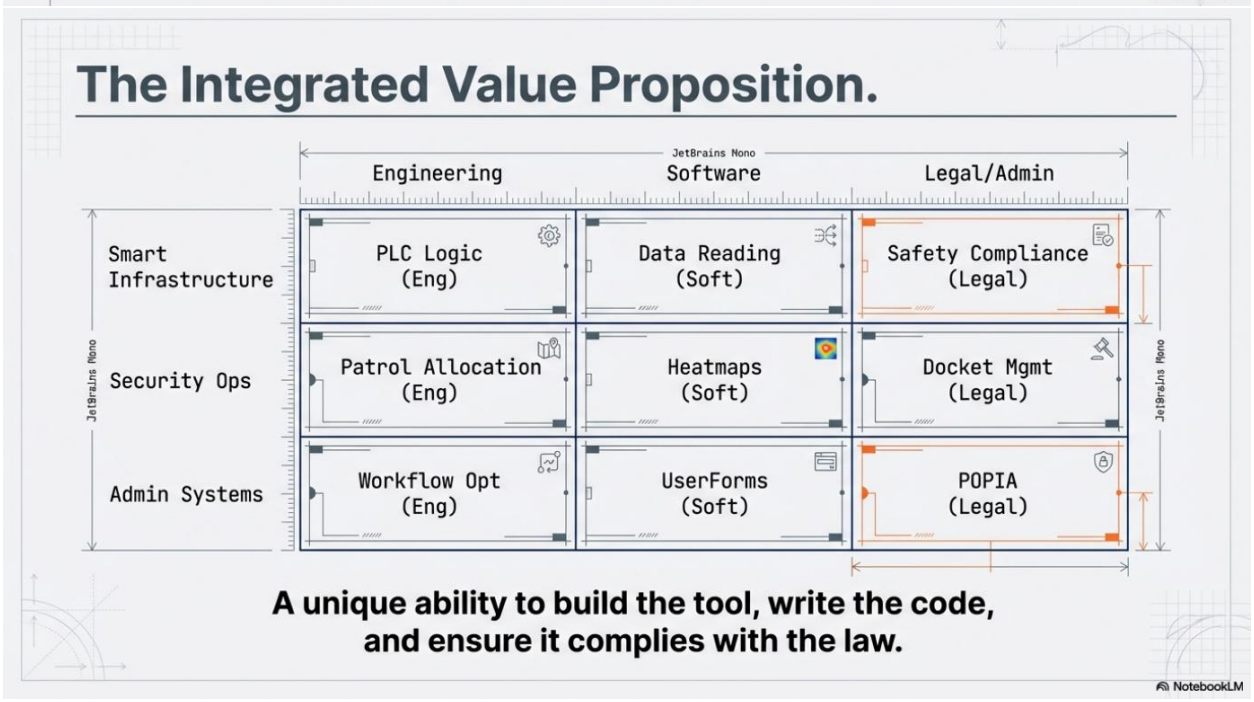
Digital Administration: DOJ Online & Case Management.

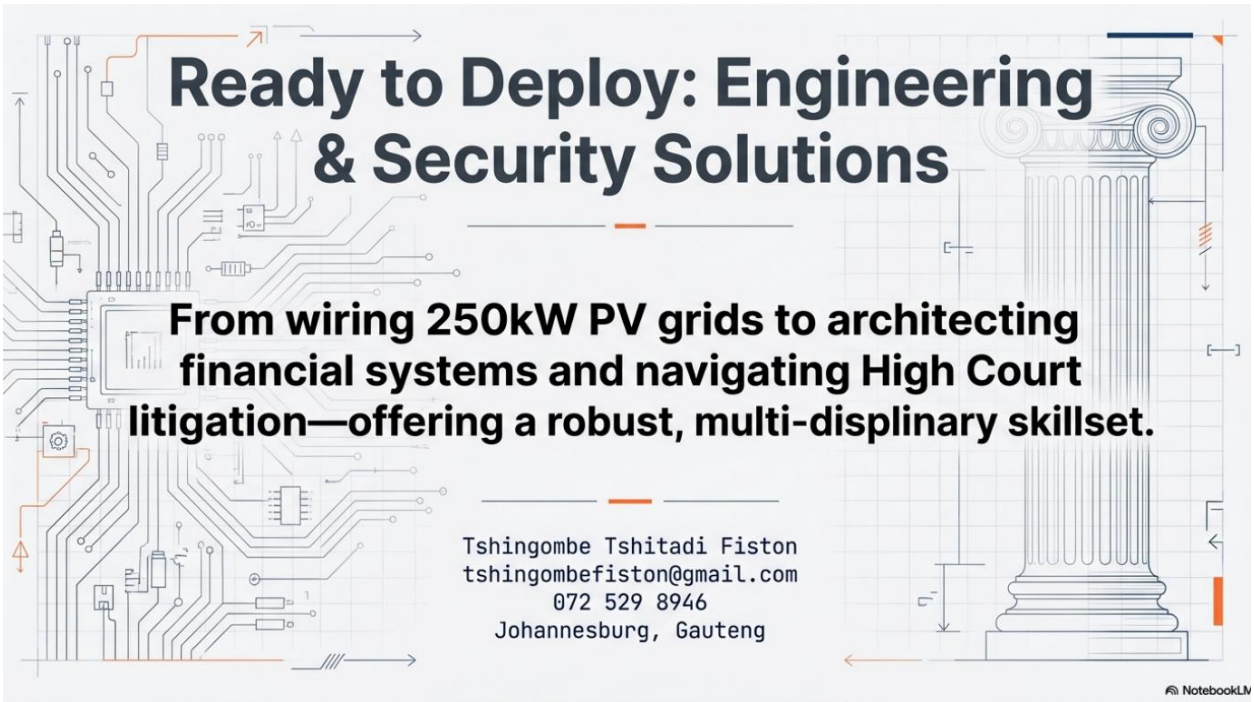
Case Type	Status	URN Number
Protection Order Application	Screen Application	4702024FCV001046
Domestic Violence (Act 116)	In Progress	-
Harassment (Act 17 of 2011)	Awaiting DHA Verification	-

Digital Correspondence: Management of URN tracking and communication with the Master of the High Court.

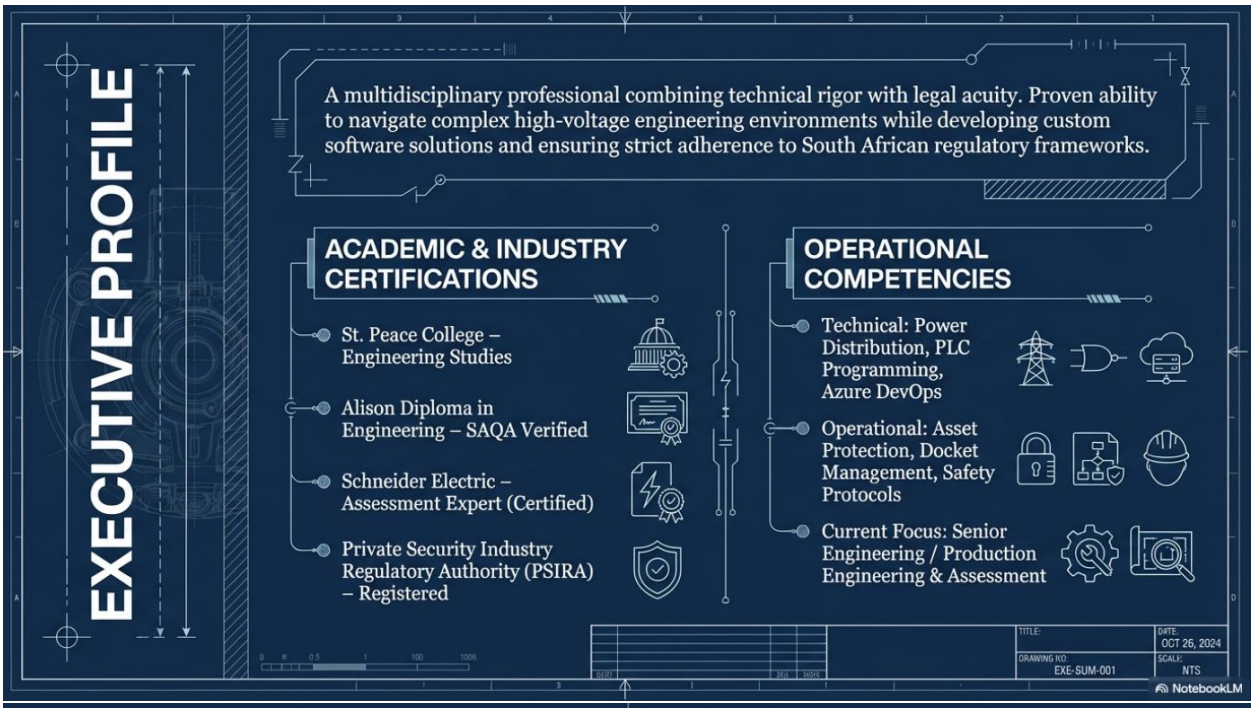
NotebookLM

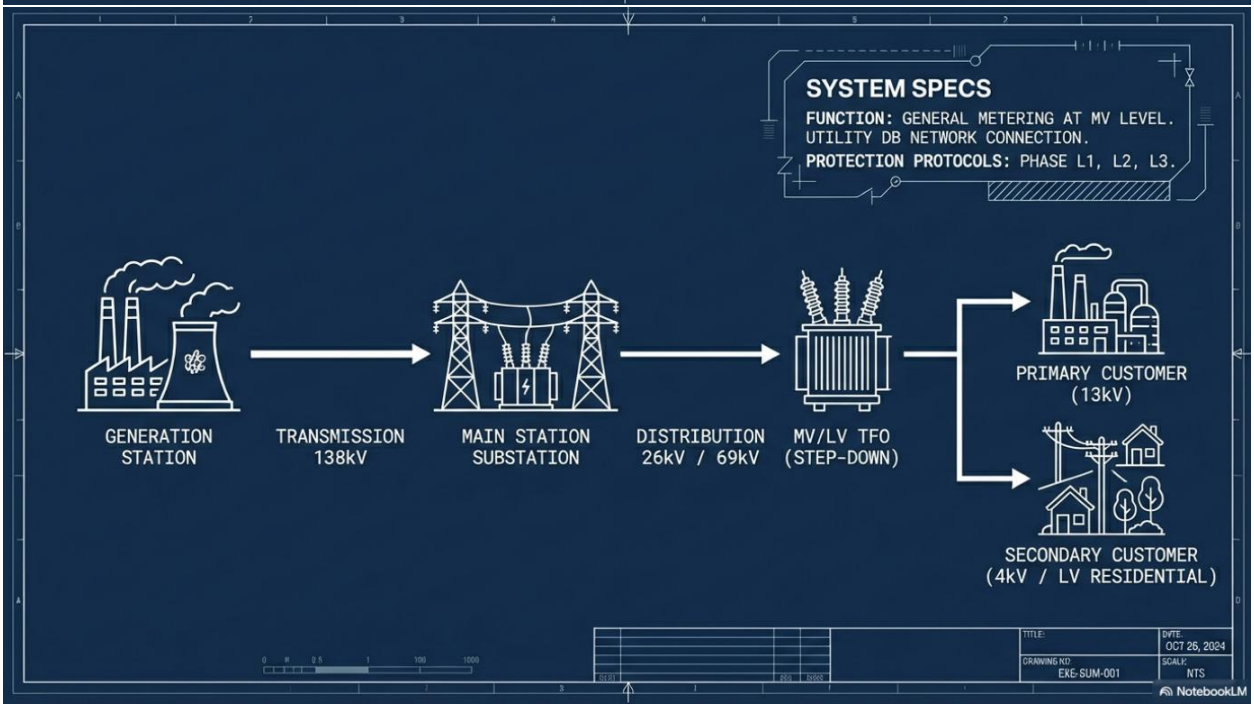

Education & Technical Certifications.
HELVETICA NOW DISPLAY
2025 (Projected):
Eaton - Assessment Expert / Security Engineering.
TIMELINE DATA POINT
2024:
Microsoft - Security Policy Information System (Azure Defender).
TIMELINE DATA POINT
2024:
Alison - Diploma in Engineering.
TIMELINE DATA POINT
2020-2021:
St Peace College - Electrical Certificate & Nated Studies.
TIMELINE DATA POINT
JetBrains Mono
Microsoft Certified
JetBrains Mono
PSIRA Grade A Registered
JetBrains Mono
SAPS Vetting Clearance
JetBrains Mono
HEXAGONAL BADGE: 60mm DIA
HEXAGONAL BADGE: 60mm DIA
HEXAGONAL BADGE: 60mm DIA
HEXAGONAL BADGE: 60mm DIA
NotebookLM

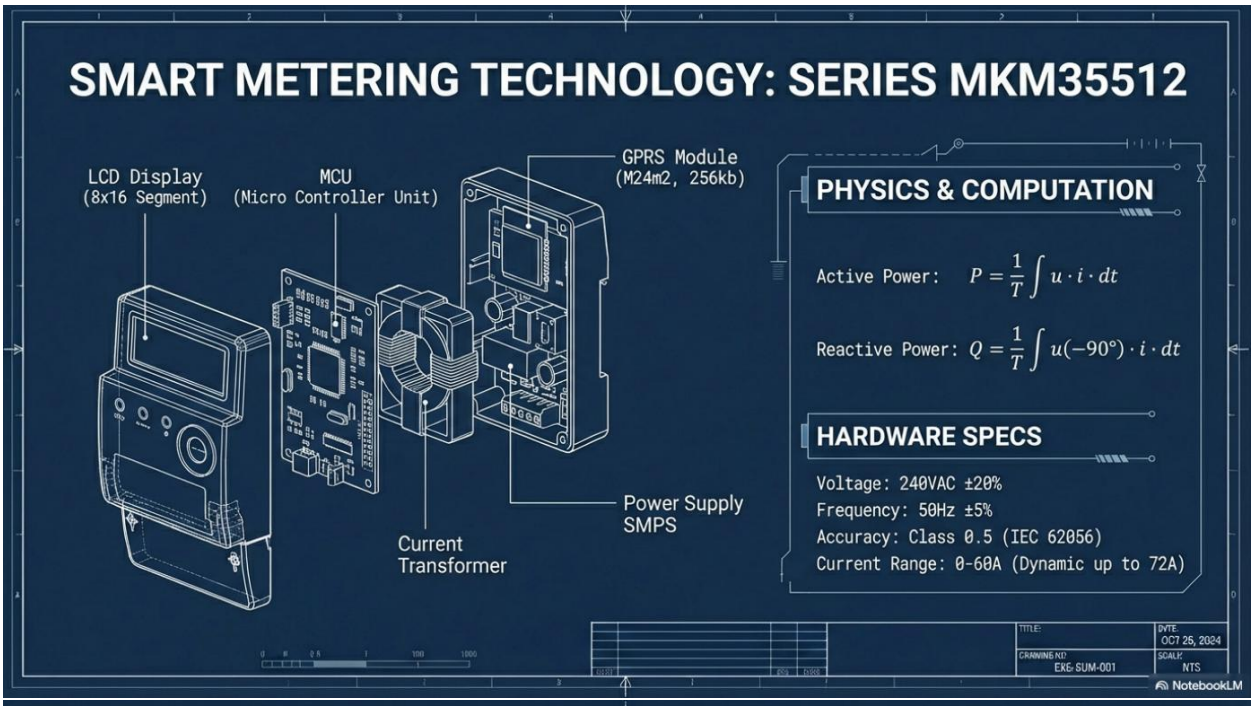

The Integrated Value Proposition.
JetBrains Mono
Engineering
Software
Legal/Admin
Smart Infrastructure
Security Ops
Admin Systems
PLC Logic (Eng)
Data Reading (Soft)
Safety Compliance (Legal)
Patrol Allocation (Eng)
Heatmaps (Soft)
Docket Mgmt (Legal)
Workflow Opt (Eng)
UserForms (Soft)
POPIA (Legal)
A unique ability to build the tool, write the code, and ensure it complies with the law.
NotebookLM

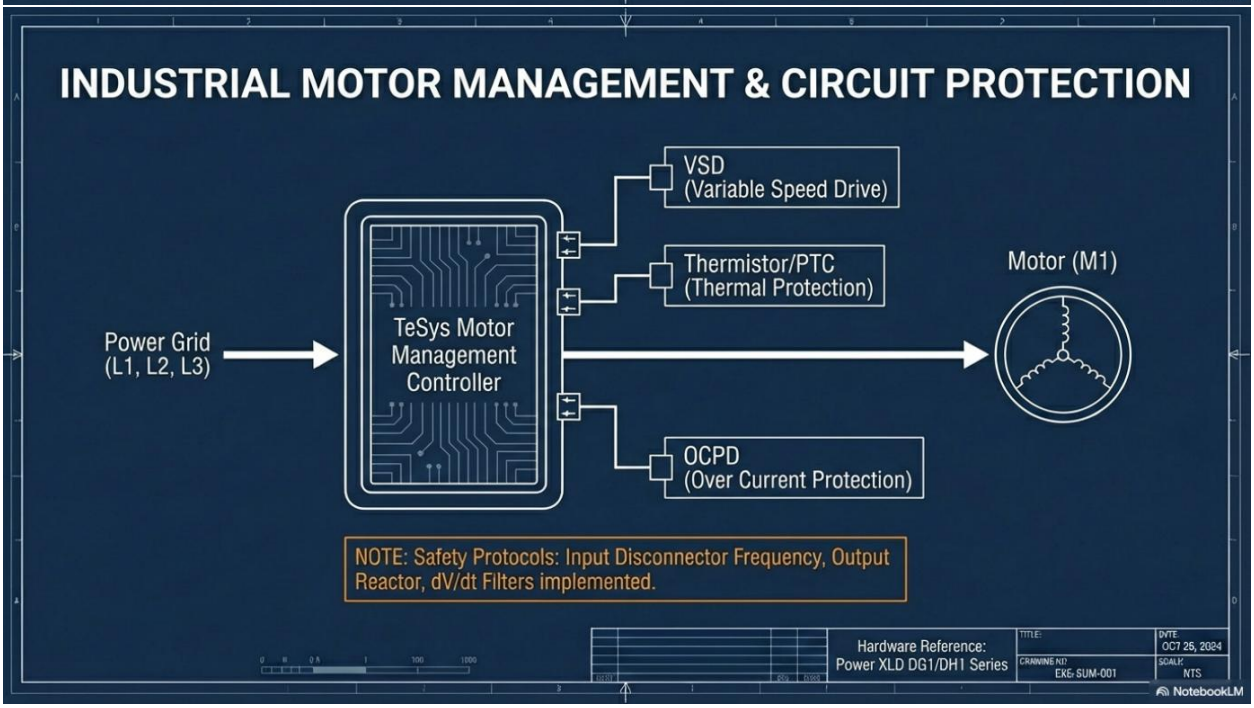

Ready to Deploy: Engineering & Security Solutions
From wiring 250kW PV grids to architecting financial systems and navigating High Court litigation—offering a robust, multi-displinary skillset.
Tshingombe Tshitadi Fiston
tshingombefiston@gmail.com
072 529 8946
Johannesburg, Gauteng
NotebookLM

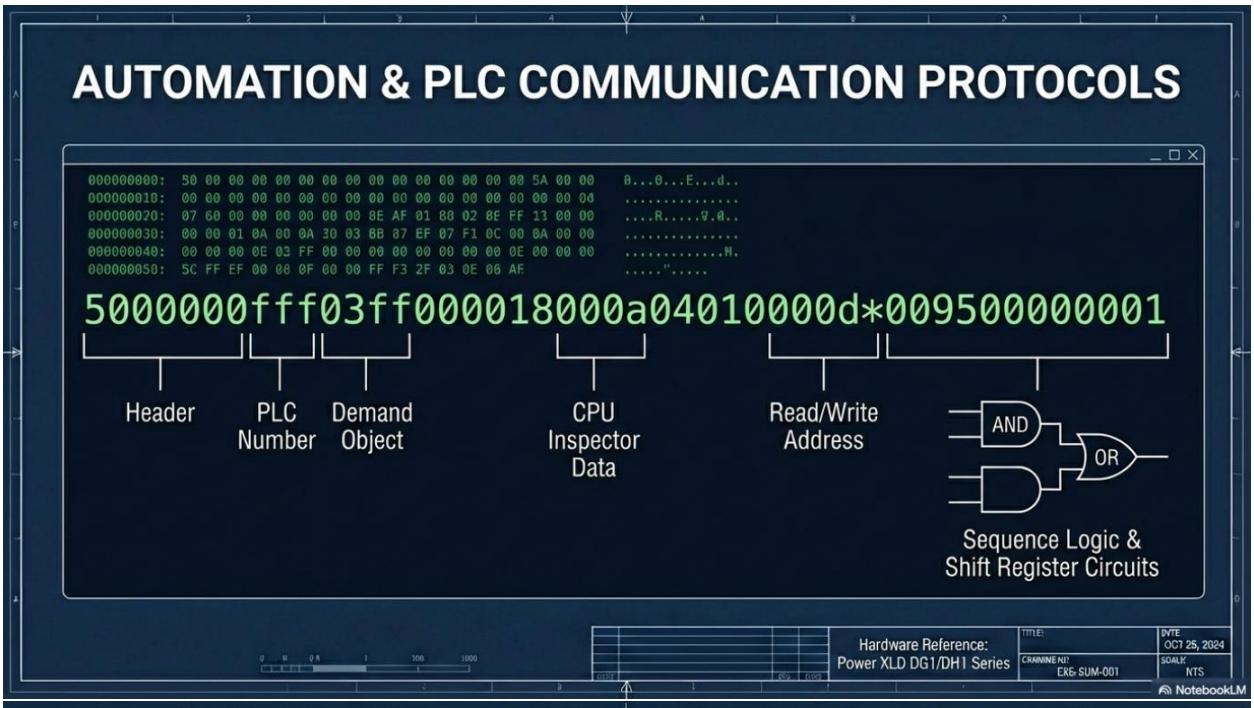
Technical Editorial
Precision Engineering
TSHINGOMBE TSHITADI FISTON
Integrated Technical Portfolio & Systems Analysis
Bridging Electrical Infrastructure, Software Automation, and Regulatory Compliance
Electrical Engineering & Smart Grid Architecture
Software Development (VB.NET, C#, PLC)
Industrial Relations & Legal Compliance (Labour Law/POPIA)
NotebookLM

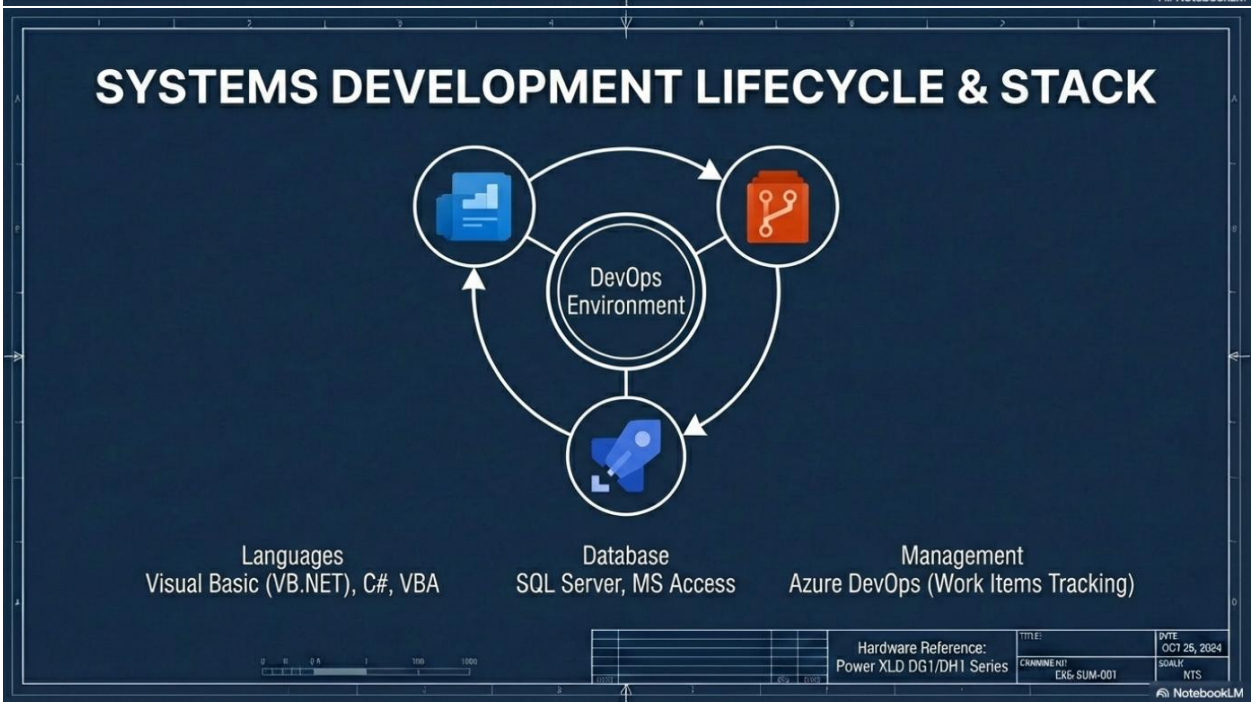

EXECUTIVE PROFILE
A multidisciplinary professional combining technical rigor with legal acuity. Proven ability to navigate complex high-voltage engineering environments while developing custom software solutions and ensuring strict adherence to South African regulatory frameworks.
ACADEMIC & INDUSTRY CERTIFICATIONS
St. Peace College – Engineering Studies
Alison Diploma in Engineering – SAQA Verified
Schneider Electric – Assessment Expert (Certified)
Private Security Industry Regulatory Authority (PSIRA) – Registered
OPERATIONAL COMPETENCIES
Technical: Power Distribution, PLC Programming, Azure DevOps
Operational: Asset Protection, Docket Management, Safety Protocols
Current Focus: Senior Engineering / Production Engineering & Assessment
TITLE:
DRAWING NO: EXE-SUM-001
DATE: OCT 26, 2024
SCALE: NTS
NotebookLM

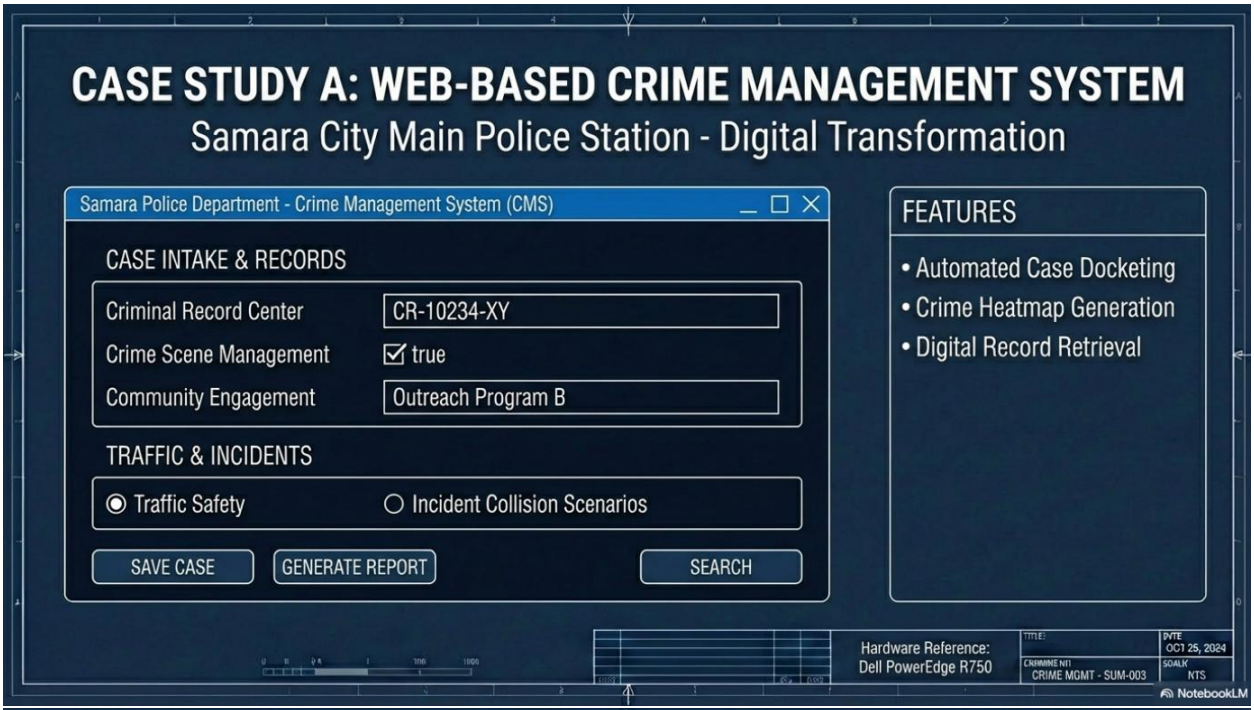

SYSTEM SPECS
FUNCTION: GENERAL METERING AT MV LEVEL. UTILITY DB NETWORK CONNECTION.
PROTECTION PROTOCOLS: PHASE L1, L2, L3.
GENERATION STATION
TRANSMISSION 138kV
MAIN STATION SUBSTATION
DISTRIBUTION 26kV / 69kV
MV/LV TFO (STEP-DOWN)
PRIMARY CUSTOMER (13kV)
SECONDARY CUSTOMER (4kV / LV RESIDENTIAL)
TITLE:
DRAWING NO: EXE-SUM-001
DATE: OCT 26, 2024
SCALE: NTS
NotebookLM

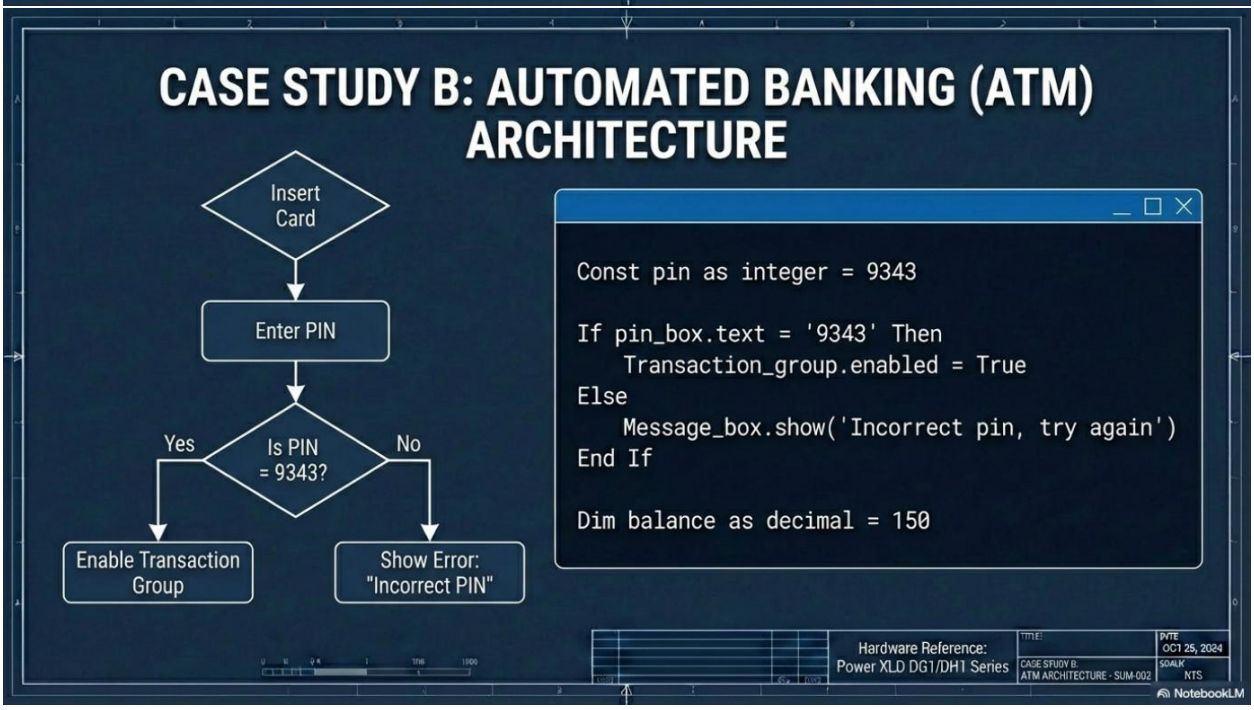

SMART METERING TECHNOLOGY: SERIES MKM35512
LCD Display
(8x16 Segment)
MCU
(Micro Controller Unit)
GPRS Module
(M24m2, 256kb)
Power Supply
SMPS
Current
Transformer
PHYSICS & COMPUTATION
Active Power: $P = \frac{1}{T}\int u \cdot i \cdot dt$
Reactive Power: $Q = \frac{1}{T}\int u(-90°) \cdot i \cdot dt$
HARDWARE SPECS
Voltage: 240VAC ±20%
Frequency: 50Hz ±5%
Accuracy: Class 0.5 (IEC 62056)
Current Range: 0-60A (Dynamic up to 72A)
TITLE:
DATE: OCT 26, 2024
DRAWING NO: EXE-SUM-001
SCALE: NTS
NotebookLM

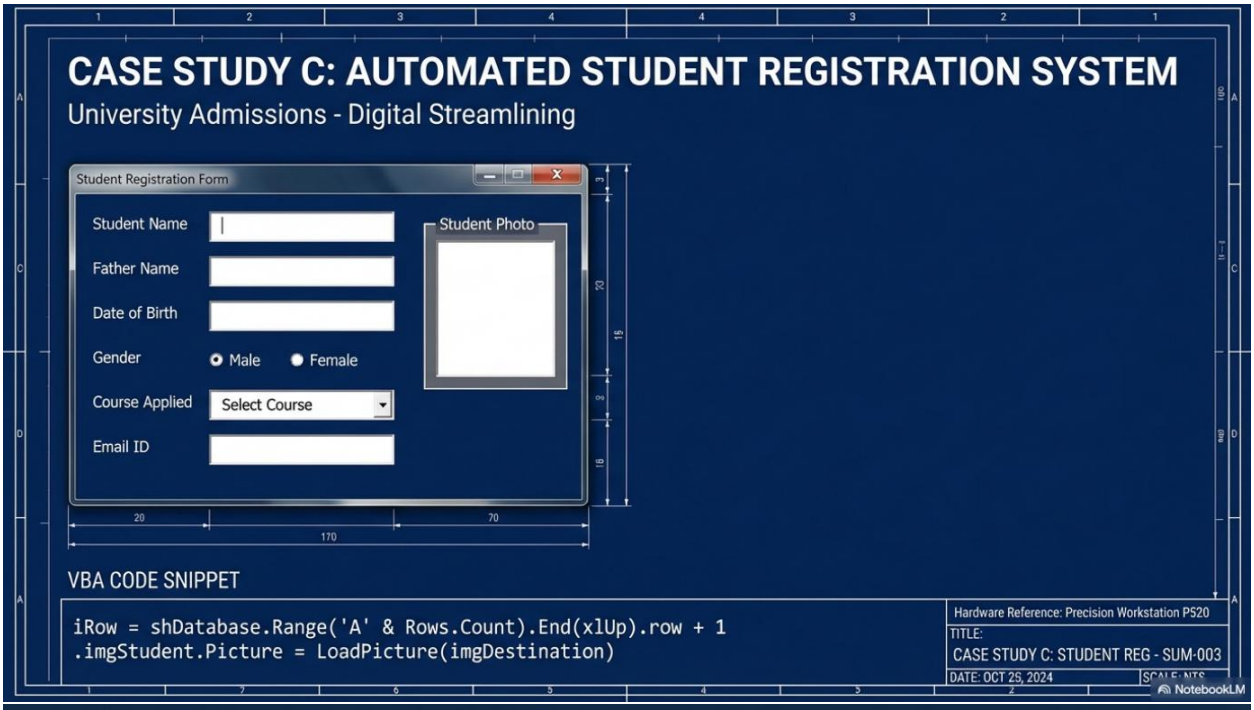

INDUSTRIAL MOTOR MANAGEMENT & CIRCUIT PROTECTION
VSD
(Variable Speed Drive)
Thermistor/PTC
(Thermal Protection)
OCPD
(Over Current Protection)
Power Grid
(L1, L2, L3)
TeSys Motor
Management
Controller
Motor (M1)
NOTE: Safety Protocols: Input Disconnector Frequency, Output Reactor, dV/dt Filters implemented.
Hardware Reference:
Power XLD DG1/DH1 Series
TITLE:
DATE: OCT 26, 2024
DRAWING NO: EXE-SUM-001
SCALE: NTS
NotebookLM


AUTOMATION & PLC COMMUNICATION PROTOCOLS
000000000: 50 00 00 00 00 00 00 00 00 00 00 00 00 00 5A 00 00 P...0...E...d..
000000010: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 04 ....
000000020: 07 60 00 00 00 00 00 00 8E AF 01 B8 02 8E FF 11 00 00 ....R.....V.0..
000000030: 00 00 01 0A 00 0A 30 03 BB 87 EF 07 F1 0C 00 0A 00 00 ....
000000040: 00 00 00 0E 03 FF 00 00 00 00 00 00 00 00 0E 00 00 00 ....N.
000000050: 5C FF EF 00 00 0F 00 00 FF F3 2F 03 0E 06 AF .....".....
5000000fff03ff000018000a04010000d*009500000001
Header
PLC Number
Demand Object
CPU Inspector Data
Read/Write Address
AND
OR
Sequence Logic & Shift Register Circuits
Hardware Reference: Power XLD DG1/DH1 Series
NotebookLM

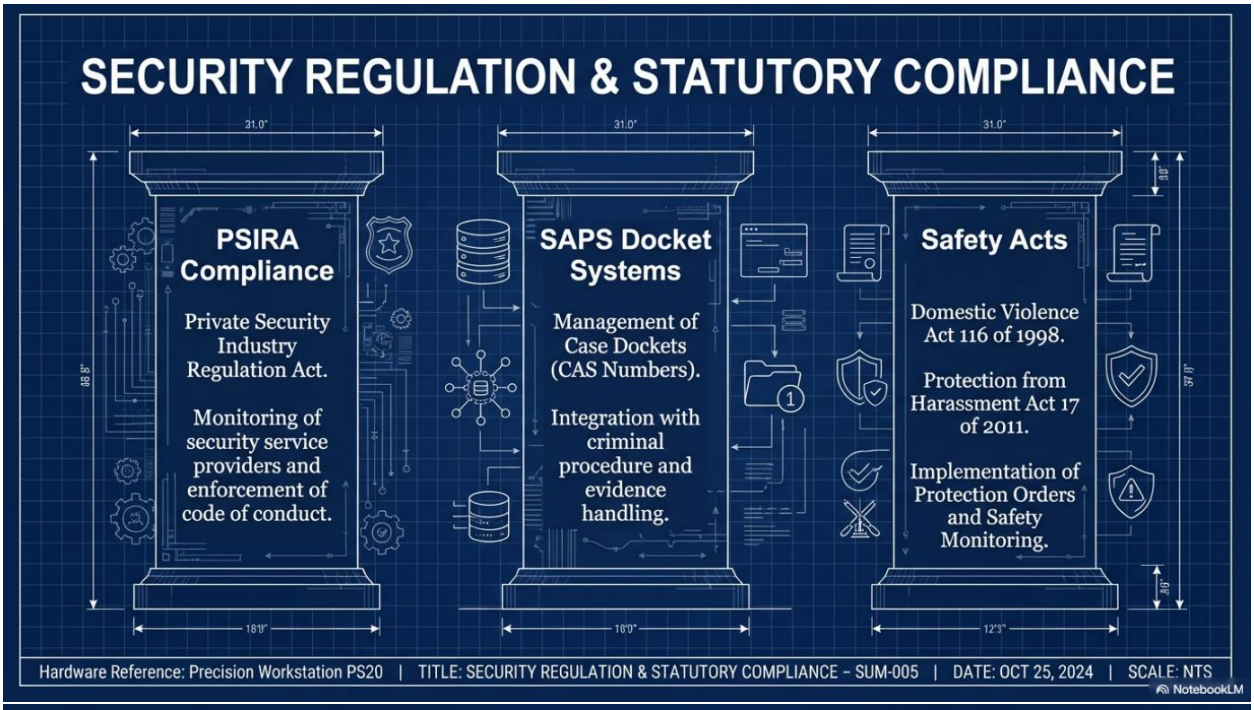

SYSTEMS DEVELOPMENT LIFECYCLE & STACK
DevOps Environment
Languages
Visual Basic (VB.NET), C#, VBA
Database
SQL Server, MS Access
Management
Azure DevOps (Work Items Tracking)
Hardware Reference: Power XLD DG1/DH1 Series
NotebookLM

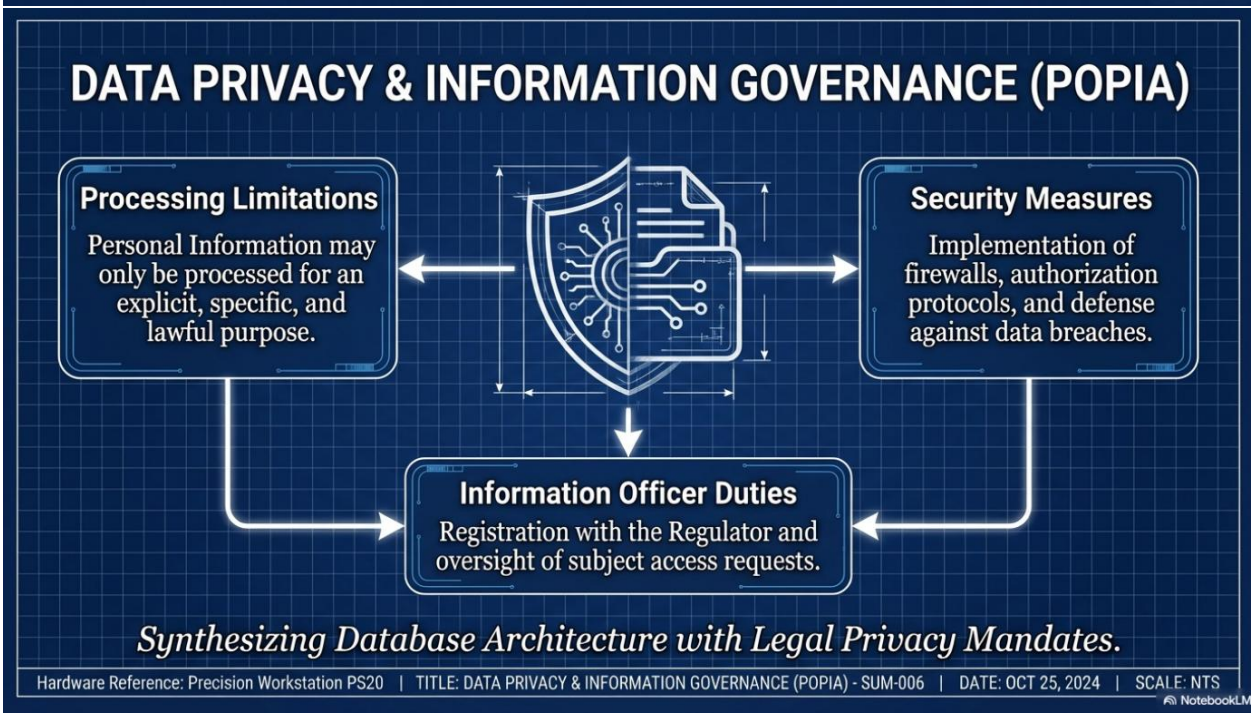

CASE STUDY A: WEB-BASED CRIME MANAGEMENT SYSTEM
Samara City Main Police Station - Digital Transformation
Samara Police Department - Crime Management System (CMS)
CASE INTAKE & RECORDS
Criminal Record Center
CR-10234-XY
Crime Scene Management
true
Community Engagement
Outreach Program B
TRAFFIC & INCIDENTS
Traffic Safety
Incident Collision Scenarios
SAVE CASE
GENERATE REPORT
SEARCH
FEATURES
• Automated Case Docketing
• Crime Heatmap Generation
• Digital Record Retrieval
Hardware Reference:
Dell PowerEdge R750
CRIME MGMT - SUM-003
OCT 25, 2024
NTS
NotebookLM

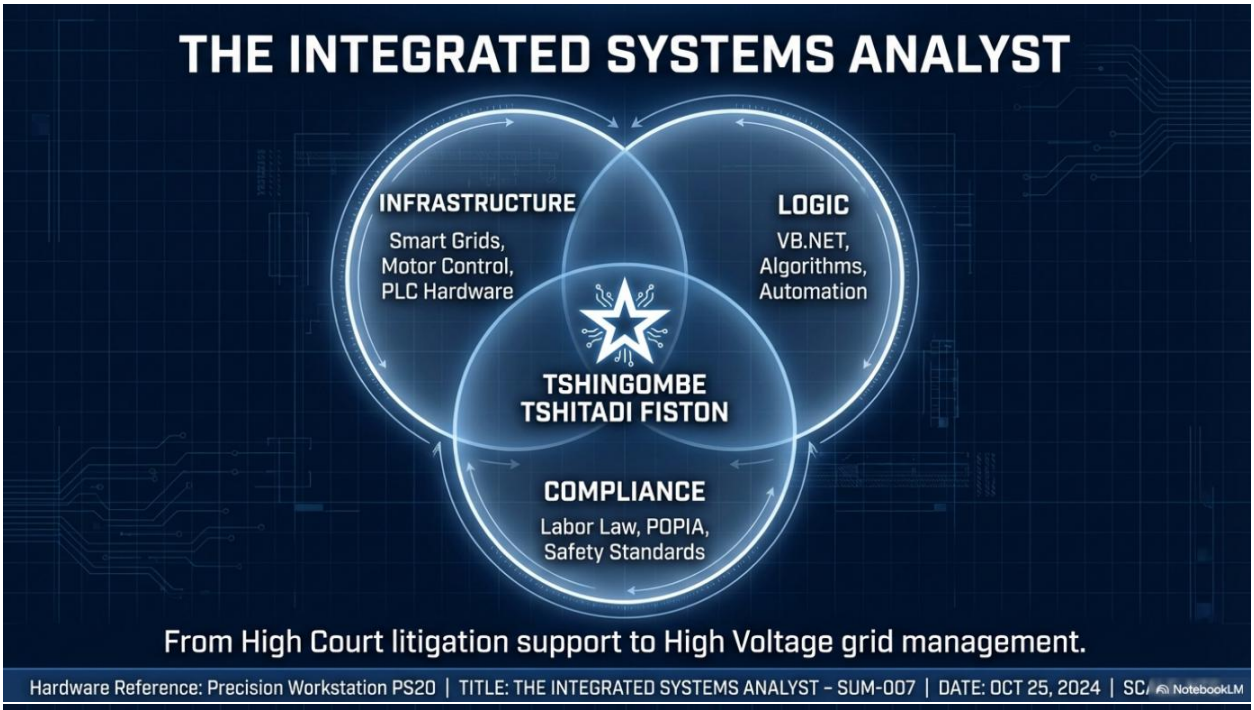

CASE STUDY B: AUTOMATED BANKING (ATM) ARCHITECTURE
Insert Card
Enter PIN
Is PIN = 9343?
Yes
No
Enable Transaction Group
Show Error: "Incorrect PIN"
Const pin as integer = 9343
If pin_box.text = '9343' Then
Transaction_group.enabled = True
Else
Message_box.show('Incorrect pin, try again')
End If
Dim balance as decimal = 150
Hardware Reference:
Power XLD DG1/DH1 Series
ATM ARCHITECTURE - SUM-002
OCT 25, 2024
NTS
NotebookLM


CASE STUDY C: AUTOMATED STUDENT REGISTRATION SYSTEM
University Admissions - Digital Streamlining
Student Registration Form
Student Name
Father Name
Date of Birth
Gender
Male
Female
Course Applied
Select Course
Email ID
Student Photo
VBA CODE SNIPPET
iRow = shDatabase.Range('A' & Rows.Count).End(xlUp).row + 1
.imgStudent.Picture = LoadPicture(imgDestination)
Hardware Reference: Precision Workstation P520
TITLE:
CASE STUDY C: STUDENT REG - SUM-003
DATE: OCT 25, 2024
NotebookLM

INDUSTRIAL RELATIONS & LABOR LAW FRAMEWORK
PROCEDURAL COMPETENCIES
1. CCMA Processes: Conciliation, Arbitration, and Review Applications.
2. Case Precedent: Reference Case JR 2461/15.
3. Labour Court Procedures: Rescission Rulings, Filing of Affidavits, Notices of Motion.
4. Bargaining Councils: Collective Agreements, Levies, and Provident Fund Compliance.
"Expert navigation of the intersection between employer obligations and employee rights under the Labour Relations Act."
Hardware Reference: Precision Workstation PS20
TITLE: INDUSTRIAL RELATIONS & LABOR LAW FRAMEWORK - SUM-004
DATE: OCT 25, 2024
NotebookLM


SECURITY REGULATION & STATUTORY COMPLIANCE
PSIRA Compliance
Private Security Industry Regulation Act.
Monitoring of security service providers and enforcement of code of conduct.
SAPS Docket Systems
Management of Case Dockets (CAS Numbers).
Integration with criminal procedure and evidence handling.
Safety Acts
Domestic Violence Act 116 of 1998.
Protection from Harassment Act 17 of 2011.
Implementation of Protection Orders and Safety Monitoring.
Hardware Reference: Precision Workstation PS20 | TITLE: SECURITY REGULATION & STATUTORY COMPLIANCE – SUM-005 | DATE: OCT 25, 2024 | SCALE: NTS
NotebookLM


DATA PRIVACY & INFORMATION GOVERNANCE (POPIA)
Processing Limitations
Personal Information may only be processed for an explicit, specific, and lawful purpose.
Security Measures
Implementation of firewalls, authorization protocols, and defense against data breaches.
Information Officer Duties
Registration with the Regulator and oversight of subject access requests.
Synthesizing Database Architecture with Legal Privacy Mandates.
Hardware Reference: Precision Workstation PS20 | TITLE: DATA PRIVACY & INFORMATION GOVERNANCE (POPIA) - SUM-006 | DATE: OCT 25, 2024 | SCALE: NTS
NotebookLM


THE INTEGRATED SYSTEMS ANALYST
INFRASTRUCTURE
Smart Grids, Motor Control, PLC Hardware
LOGIC
VB.NET, Algorithms, Automation
TSHINGOMBE TSHITADI FISTON
COMPLIANCE
Labor Law, POPIA, Safety Standards
From High Court litigation support to High Voltage grid management.
Hardware Reference: Precision Workstation PS20 | TITLE: THE INTEGRATED SYSTEMS ANALYST – SUM-007 | DATE: OCT 25, 2024 | SC
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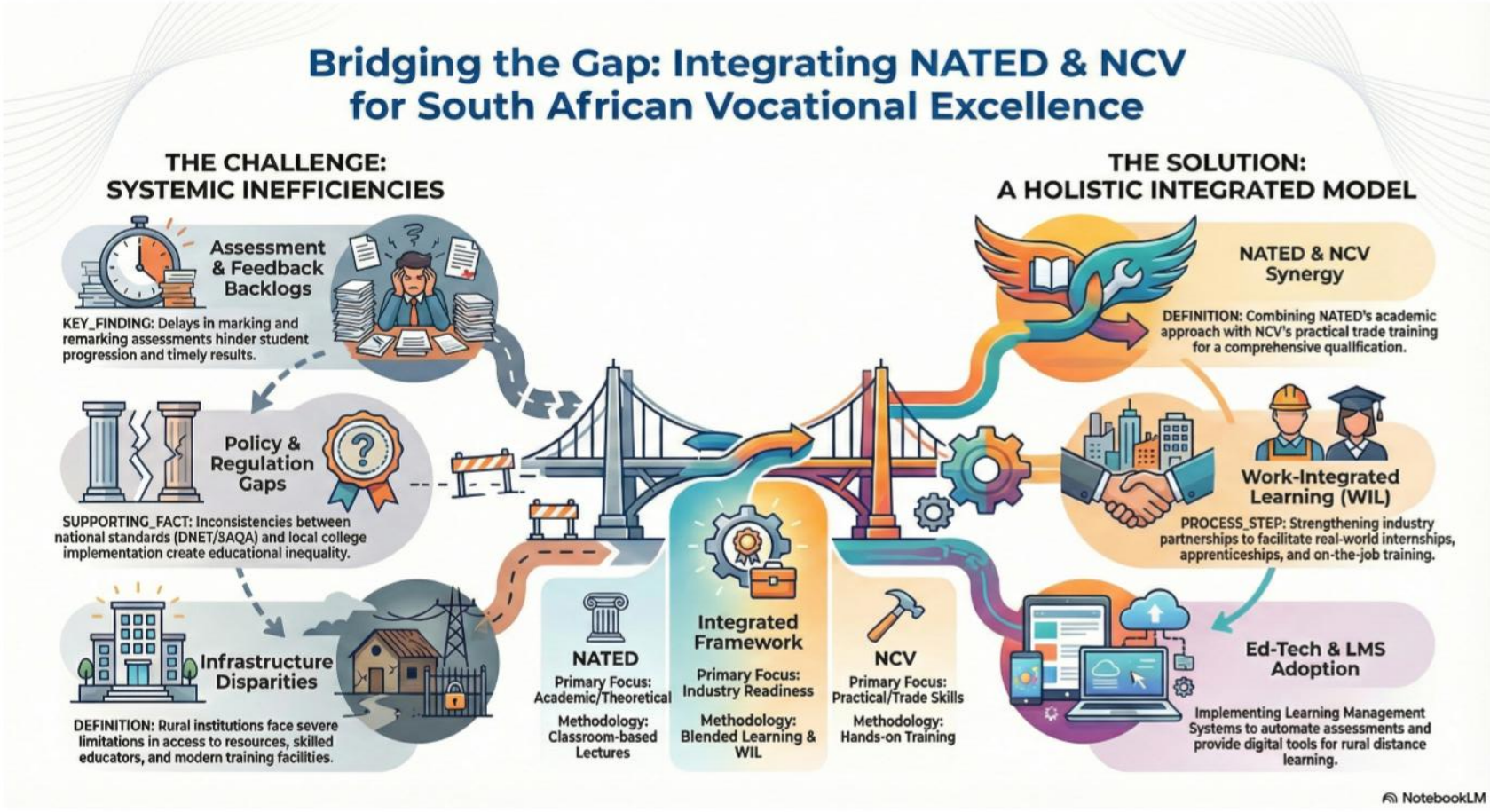
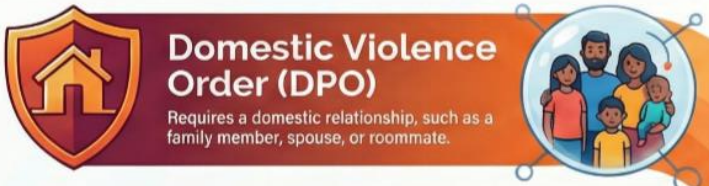
TSHINGOMBE TSHITADI FISTON
Available for Engineering, Systems Development, and Compliance Roles
Email: tshingombefiston@gmail.com
Location: Johannesburg / Gauteng
Professional Portfolio: Engineering | IT | Law
Bridging the gap between technical innovation and regulatory framework.

Revitalizing Vocational Training:
The NATED-NCV Integration Framework
NATED
(National Diploma)
Primary Focus: Academic-Based.
Training Nature: Theoretical knowledge and coursework.
NCV
(National Certificate)
Primary Focus: Skill-Based.
Training Nature: Practical training aligned with specific trades.
The Integrated Education Model
NATED Academic + NCV Practical
Combining NATED's academic theory with NCV's hands-on skills for a holistic vocational model.
Addressing Systemic Delays
Reducing assessment feedback lag to ensure continuous learning and career progression for students.
Industry-Ready Objective
Aligning curriculum with real-world requirements to produce graduates ready for immediate employment.
Closing the Policy Gap
Standardizing regulations between local colleges and national bodies to ensure qualification credibility.
Enhanced Workplace-Based Learning
Integrating industry partnerships to facilitate apprenticeships and real-world job exposure.
Digital & Rural Accessibility
Implementing Learning Management Systems (LMS) and virtual labs to reach resource-constrained areas.
NotebookLM


Bridging the Gap: Integrating NATED & NCV for South African Vocational Excellence
THE CHALLENGE: SYSTEMIC INEFFICIENCIES
Assessment & Feedback Backlogs
KEY_FINDING: Delays in marking and remarking assessments hinder student progression and timely results.
Policy & Regulation Gaps
SUPPORTING_FACT: Inconsistencies between national standards (DNET/SAQA) and local college implementation create educational inequality.
Infrastructure Disparities
DEFINITION: Rural institutions face severe limitations in access to resources, skilled educators, and modern training facilities.
THE SOLUTION: A HOLISTIC INTEGRATED MODEL
NATED & NCV Synergy
DEFINITION: Combining NATED's academic approach with NCV's practical trade training for a comprehensive qualification.
Work-Integrated Learning (WIL)
PROCESS_STEP: Strengthening industry partnerships to facilitate real-world internships, apprenticeships, and on-the-job training.
Ed-Tech & LMS Adoption
Implementing Learning Management Systems to automate assessments and provide digital tools for rural distance learning.
NATED
Primary Focus: Academic/Theoretical
Methodology: Classroom-based Lectures
Integrated Framework
Primary Focus: Industry Readiness
Methodology: Blended Learning & WIL
NCV
Primary Focus: Practical/Trade Skills
Methodology: Hands-on Training
NotebookLM

Navigating Protection Orders in South Africa: Domestic Violence vs. Harassment

The South African judicial system provides protection through two specific acts: the Domestic Violence Act (116 of 1998) and the Protection from Harassment Act (17 of 2011). While both aim to stop abuse, they differ significantly based on the relationship between parties and the nature of the behavior.



Domestic Violence Order (DPO)

Requires a domestic relationship, such as a family member, spouse, or roommate.

Pattern of Abuse
Repetitive actions required

Common Forms
Physical, sexual, or financial abuse

Relationship	Required (Domestic)
Frequency	Repetitive pattern of abuse

Harassment Protection Order (HPO)

No relationship is required; applicable against neighbors, strangers, or anyone outside the home.

Relationship	Not Required (Strangers/Heighbors)
Frequency	Single offense may be sufficient

First Offense
Can be granted for a single incident

Common Forms
Stalking, messaging, or unwanted packages

The 3-Step Legal Path to Safety

Step 1: Complete Form 2 and Affidavit

Document specific dates, times, and places of incidents thoroughly.

Step 2: Service of the Interim Order

The order is only valid once personally served by a sheriff or police.

Step 3: Violation Penalties

Breaching a final order can result in up to 5 years imprisonment.

NotebookLM

Navigating South African Protection Orders: DPO vs. HPO

The South African judicial system provides two primary mechanisms for protection against abuse: the Domestic Violence Act (DPO) and the Protection from Harassment Act (HPO). Understanding which act applies to a specific relationship or behavior is the first step in seeking a legal remedy.

DOMESTIC RELATIONSHIP: DOMESTIC VIOLENCE ORDER (DPO)

PROTECTION FROM HARASSMENT ACT (HPO)

Domestic Relationship Required
DPO requires a domestic relationship; applies to spouses, partners, or roommates.

Patterns of Abuse
DPO requires a repetitive pattern of behavior.

Scope of Violence
DPO covers physical/sexual violence, financial, and emotional abuse.

Scope of Violence

None Required (Can be a stranger)
HPO applies to neighbors, strangers, or any non-domestic relationship.

Single Incident is Sufficient
HPO can be granted for a single first offense.

Focus on Messaging & Stalking
HPO focuses on messaging, stalking, and psychological harm; no physical violence required.

THE LEGAL APPLICATION PROCESS

Filing the Interim Order
Victims must first apply for a temporary interim order via a Magistrate Court.

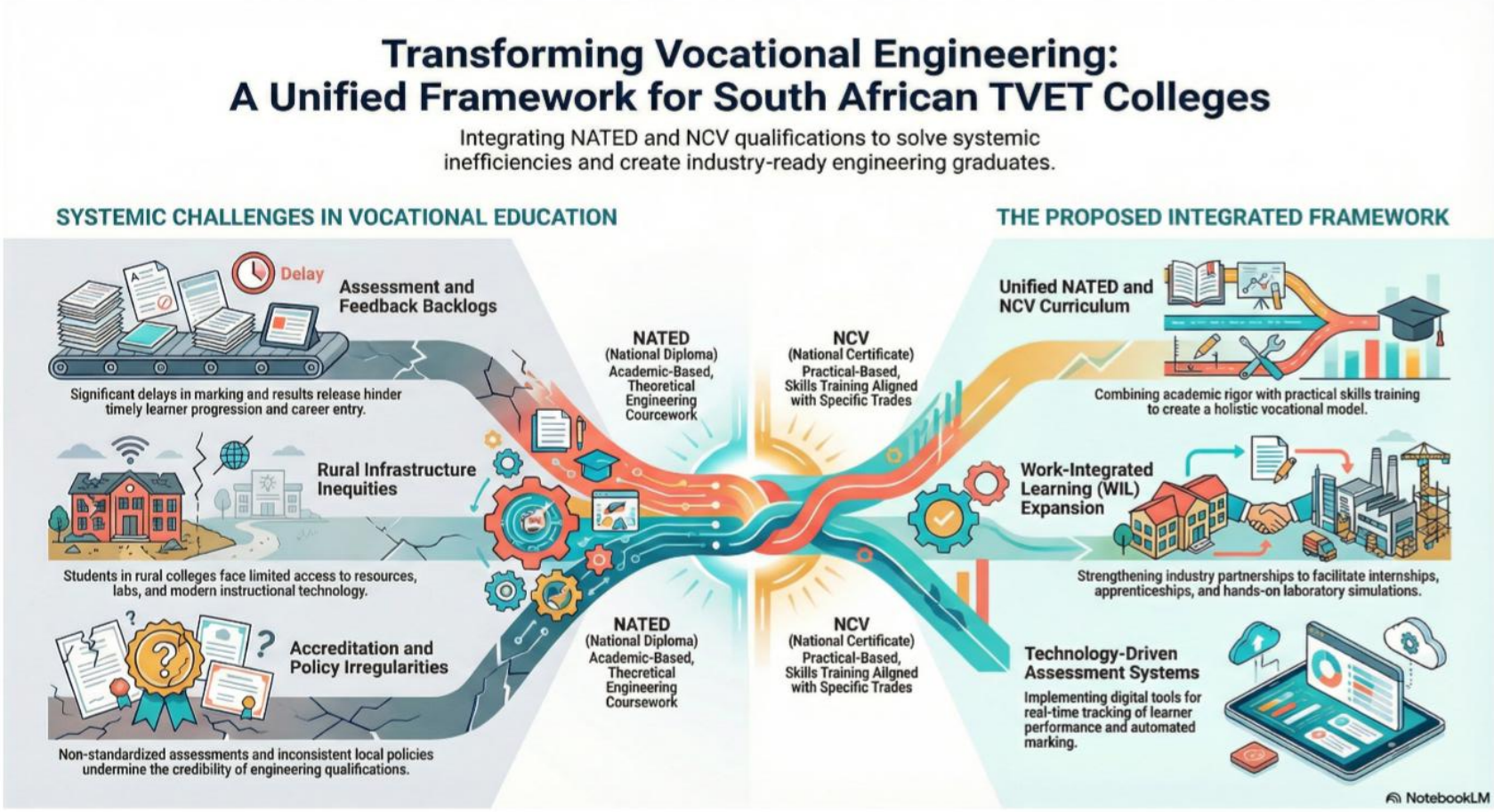
Personal Service Requirement
Orders only take effect once personally served by a Sheriff or Police official.

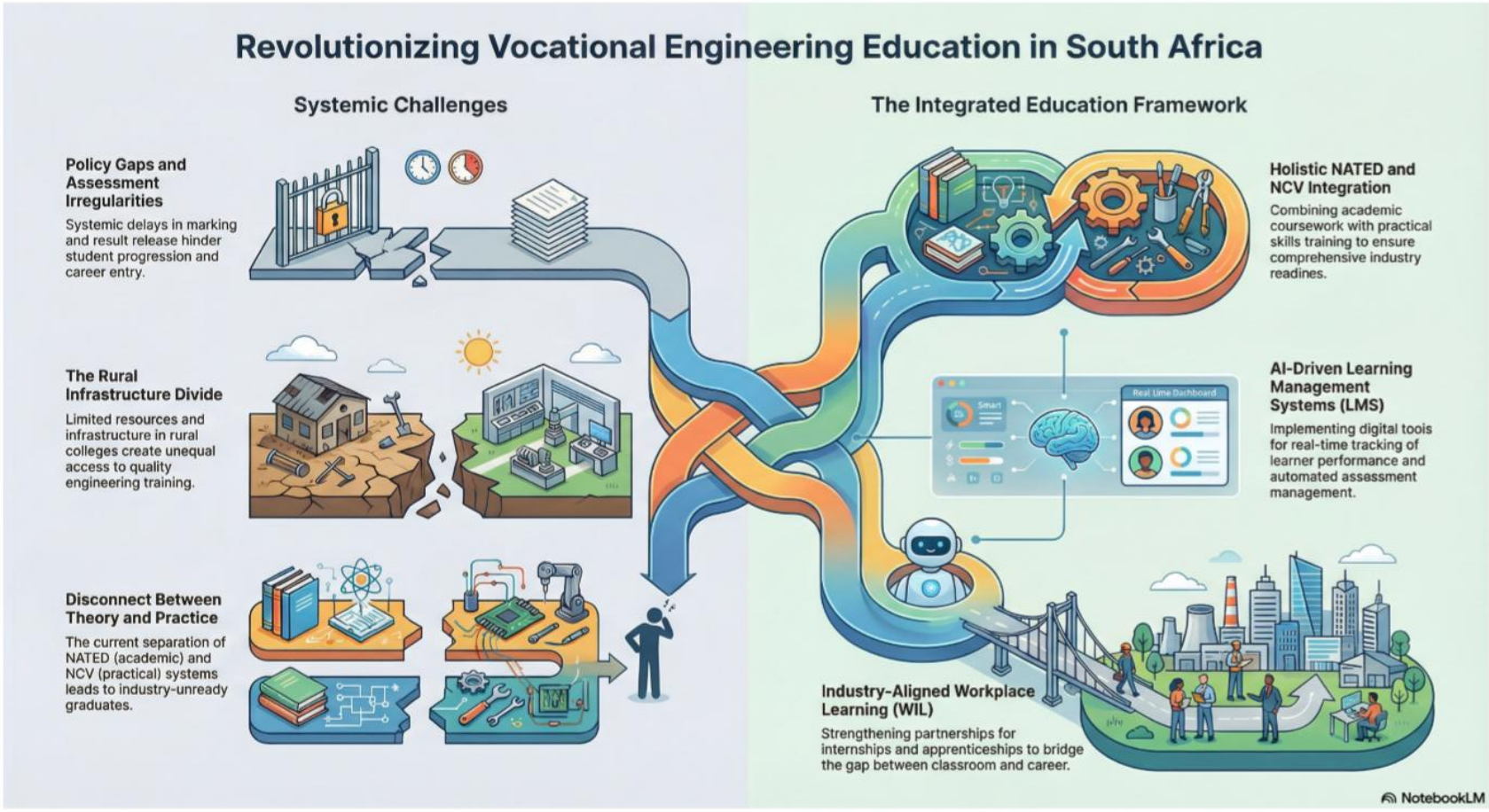
Granting the Final Order
A formal court hearing determines if the interim order becomes permanent.

NotebookLM

Transforming Vocational Engineering: A Unified Framework for South African TVET Colleges

Integrating NATED and NCV qualifications to solve systemic inefficiencies and create industry-ready engineering graduates.


SYSTEMIC CHALLENGES IN VOCATIONAL EDUCATION
THE PROPOSED INTEGRATED FRAMEWORK
Delay
Assessment and Feedback Backlogs
Significant delays in marking and results release hinder timely learner progression and career entry.
Rural Infrastructure Inequities
Students in rural colleges face limited access to resources, labs, and modern instructional technology.
Accreditation and Policy Irregularities
Non-standardized assessments and inconsistent local policies undermine the credibility of engineering qualifications.
NATED (National Diploma) Academic-Based, Theoretical Engineering Courcework
NCV (National Certificate) Practical-Based, Skills Training Aligned with Specific Trades
NATED (National Diploma) Academic-Based, Thecretical Engineering Coursework
NCV (National Certificate) Practical-Based, Skills Training Ailgned with Specific Trades
Unified NATED and NCV Curriculum
Combining academic rigor with practical skills training to create a holistic vocational model.
Work-Integrated Learning (WIL) Expansion
Strengthening industry partnerships to facilitate internships, apprenticeships, and hands-on laboratory simulations.
Technology-Driven Assessment Systems
Implementing digital tools for real-time tracking of learner performance and automated marking.
NotebookLM


Revolutionizing Vocational Engineering Education in South Africa
Systemic Challenges
The Integrated Education Framework
Policy Gaps and Assessment Irregularities
Systemic delays in marking and result release hinder student progression and career entry.
The Rural Infrastructure Divide
Limited resources and infrastructure in rural colleges create unequal access to quality engineering training.
Disconnect Between Theory and Practice
The current separation of NATED (academic) and NCV (practical) systems leads to industry-unready graduates.
Holistic NATED and NCV Integration
Combining academic coursework with practical skills training to ensure comprehensive industry readines.
AI-Driven Learning Management Systems (LMS)
Implementing digital toois for real-time tracking of learner performance and automated assessment management.
Industry-Aligned Workplace Learning (WIL)
Strengthening partnerships for internships and apprenticeships to bridge the gap between classroom and career.
NotebookLM

Navigating Systems: Engineering Standards and Legal Rights

Industrial Automation and Power Systems

Smart Metering and PLC Integration

Design focuses on the MKM35512 series for three-phase AC static watt-hour measurement.

PLC Data Communication

Systems utilize specific read/write command strings for CPU data inspection and device control.

Power Distribution Infrastructure

Covers PV installations from 6.5 to 250kW, spanning generation stations to secondary customers.

South African Legal and Data Protection

Domestic Violence Act 116 of 1998

Provides legal mechanisms for protection orders against physical, emotional, and economic abuse.

Protection of Personal Information (POPI) Act

Limits how employers process personal data, requiring specific, lawful purposes for information handling.

South African Protection Order Types

Feature	Domestic Violence Act (DPO)	Harassment Act (HPO)
Relationship	Requires "Domestic Relationship"	No relationship required
Pattern of Abuse	Pattern (repetitive) required	First offense can be sufficient
Typical Prohibitions	Entry to shared residence/work	Cease staiking/harassing behavior

Protection from Harassment Act 17 of 2011

Differs from domestic violence law by not requiring a prior relationship for an order.

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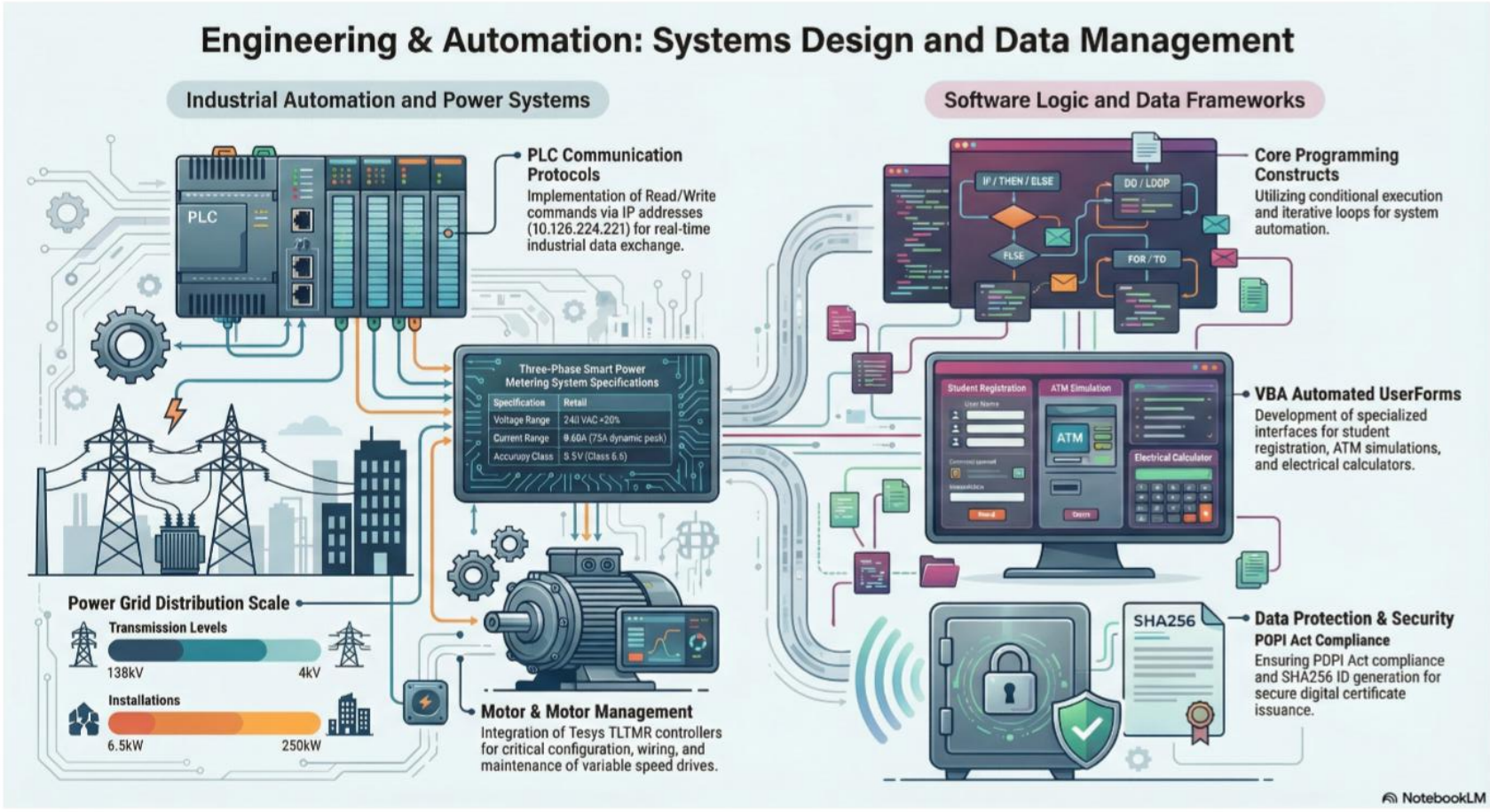

Engineering & Automation: Systems Design and Data Management
Industrial Automation and Power Systems
Software Logic and Data Frameworks
PLC
PLC Communication Protocols
Implementation of Read/Write commands via IP addresses (10.126.224.221) for real-time industrial data exchange.
Three-Phase Smart Power Metering System Specifications
Specification
Retail
Voltage Range
Current Range
Accuracy Class
Power Grid Distribution Scale
Transmission Levels
138kV
4kV
Installations
6.5kW
250kW
Motor & Motor Management
Integration of Tesys TLTMR controllers for critical configuration, wiring, and maintenance of variable speed drives.
IP / THEN / ELSE
DO / LOOP
FLSE
FOR / TO
Core Programming Constructs
Utilizing conditional execution and iterative loops for system automation.
Student Registration
ATM Emulation
ATM
Electrical Calculator
VBA Automated UserForms
Development of specialized interfaces for student registration, ATM simulations, and electrical calculators.
SHA256
Data Protection & Security
POPI Act Compliance
Ensuring PDPI Act compliance and SHA256 ID generation for secure digital certificate issuance.
NotebookLM

Integrated Engineering Systems & Legal Compliance Framework

Industrial Automation & Power Engineering

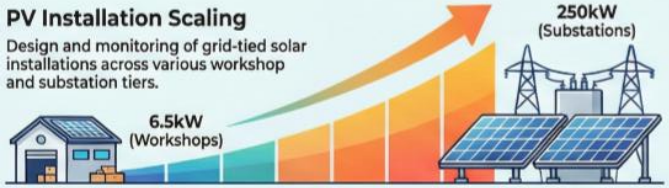
PLC & Smart Metering Integration

Advanced programming for PLC data read/write operations and MKM35512 series three-phase smart meters.

Technical Metering Specs	
Meter Type	5-Phase AC Static Watt-Hour Smart
Accuracy Class	0.5% (Class 0.95)
Voltage Range	240 VAC +20%

PV Installation Scaling

Design and monitoring of grid-tied solar installations across various workshop and substation tiers.



Multi-Language Software Automation

Custom systems developed using VBA, C#, and VB.NET for automated registration and data management.

Legal & Regulatory Compliance (South Africa)

Labor Law & CCMA Litigation

Extensive experience managing Labor Appeal Court cases (2a 37/19) and CCMA arbitration outcomes.

Protection Order Frameworks

Navigating the Domestic Violence Act 116 and Protection from Harassment Act 17 protocols.

POPIA & Privacy Compliance

Adherence to the Protection of Personal Information Act for secure data processing and information.

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Navigating Protection Orders in South Africa: DPO vs. HPO

Based on the **Domestic Violence Act 116 of 1998** and the **Protection from Harassment Act 17 of 2011**, this guide outlines how to secure legal protection against abuse, distinguishing between domestic relationships and general harassment, and detailing the judicial process.

Understanding the Protection Order Types

Domestic Violence Protection Order (DPO)

Requires a 'domestic relationship' and a repetitive pattern of physical, sexual, or economic abuse.

Requires a 'domestic relationship' and a repetitive pattern of physical, sexual, or economic abuse.

Shared Prohibitions

Seize firearms

Prohibit entry to residences

Stop financial threats

Harassment Protection Order (HPO)

No prior relationship required; a first offense is sufficient to apply for protection.

Key Differences at a Glance

Domestic Violence (DPO)	Harassment (HPO)
Relationship Needed: Yes (Domestic/Roommate) ✓	**Relationship Needed:** No (Neighbors/Strangers) ✗
Pattern of Abuse: Required (Repetitive) ✓	**Pattern of Abuse:** Not Required (First offense OK)
Primary Form: DPO Act Form 2	**Primary Form:** HPO Act Form 2

The 3-Step Application Process

Step 1: Complete Form 2

Submit an accurate Form 2 supported by a detailed affidavit of specific incidents.

Step 2: Interim Order Discretion

A Magistrate considers the application and may grant a temporary 'Interim' protection order.

Step 3: Service and Finalization

The order must be served by a Sheriff; violating it carries up to 5 years imprisonment.

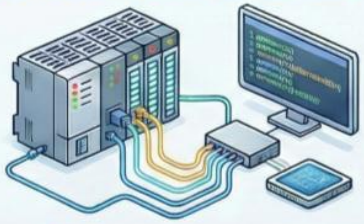
NotebookLM

Systems Engineering and the Legal Landscape: A Multi-Disciplinary Framework

INDUSTRIAL AUTOMATION AND POWER SYSTEMS

PLC Communication and Data Integration

Standardized command strings (e.g., 5000 head codes) enable reading and writing data across industrial networks.



Smart Power Metering Technology

Three-phase watt-hour meters utilize precise algorithms for active and reactive energy measurement and tamper detection.

Smart Power Metering Parameters

Parameter	Specification
Nominal Voltage	240 VAC +20%
Dynamic Current Range	0 - 72A (10A Nominal)
Metering Accuracy	Class 0.5 (0.2% deviation)

VBA-Driven Administrative Systems

Automated Excel/VBA forms streamline data entry for registration, billing, and database management.

LEGAL FRAMEWORK AND REGULATORY COMPLIANCE

The POPI Act (Protection of Personal Information)

South African legislation limiting personal data processing to explicit, specific, and lawful purposes by employers.

Domestic Violence Act (116 of 1998)

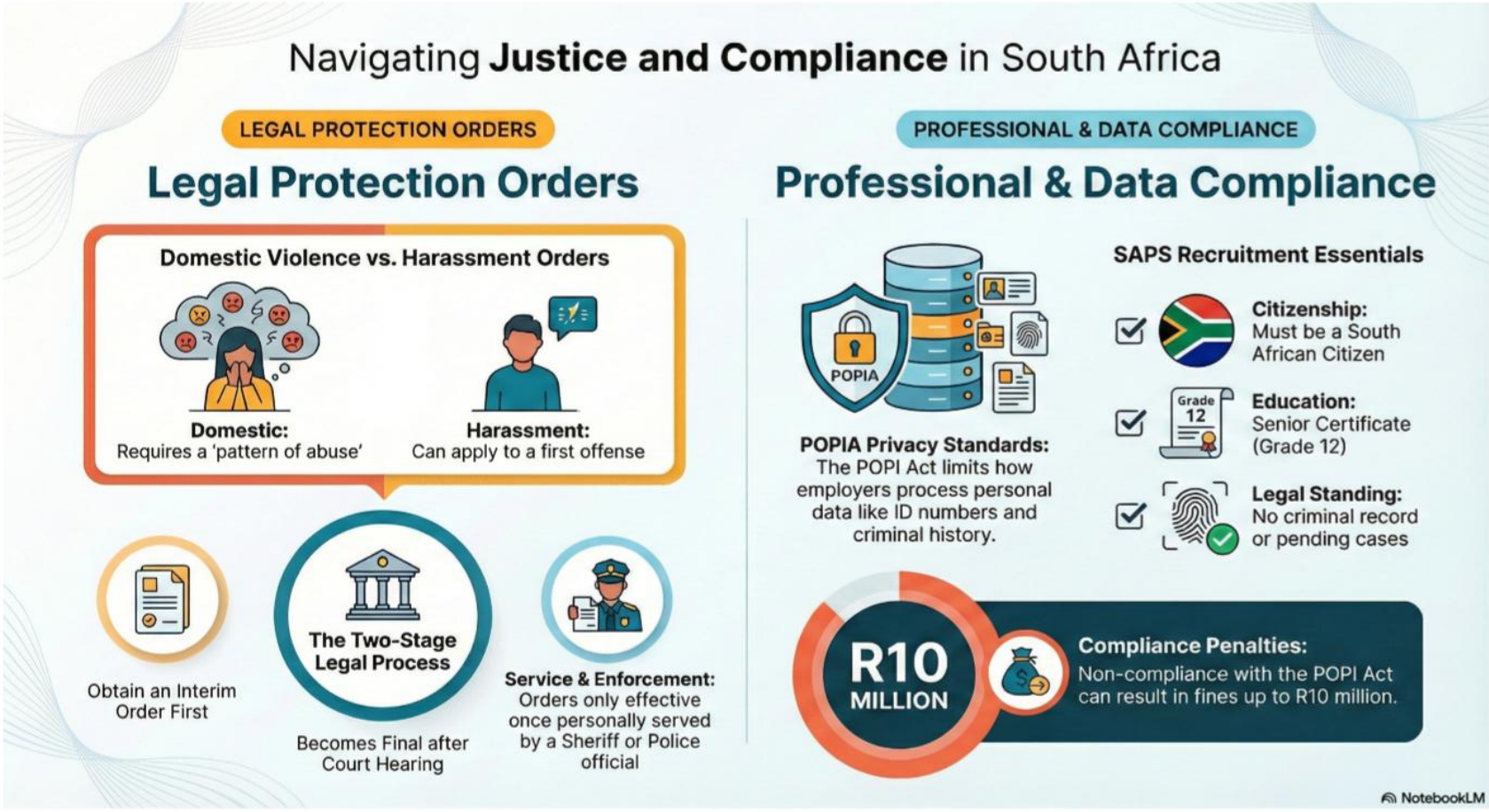
Provides legal mechanisms for obtaining Protection Orders to stop abuse within domestic relationships.

Labour Law and CCMA Procedures

Framework for filing referrals and appeals regarding workplace disputes, social justice, and employment rights.

Outlining technical protocols for automation while detailing necessary legal protections and compliance in South Africa.

NotebookLM


Navigating Justice and Compliance in South Africa
LEGAL PROTECTION ORDERS
Legal Protection Orders
Domestic Violence vs. Harassment Orders
Domestic:
Requires a 'pattern of abuse'
Harassment:
Can apply to a first offense
Obtain an Interim Order First
The Two-Stage Legal Process
Becomes Final after Court Hearing
Service & Enforcement:
Orders only effective once personally served by a Sheriff or Police official
PROFESSIONAL & DATA COMPLIANCE
Professional & Data Compliance
POPIA
POPIA Privacy Standards:
The POPI Act limits how employers process personal data like ID numbers and criminal history.
SAPS Recruitment Essentials
Citizenship:
Must be a South African Citizen
Grade 12
Education:
Senior Certificate (Grade 12)
Legal Standing:
No criminal record or pending cases
R10 MILLION
Compliance Penalties:
Non-compliance with the POPI Act can result in fines up to R10 million.
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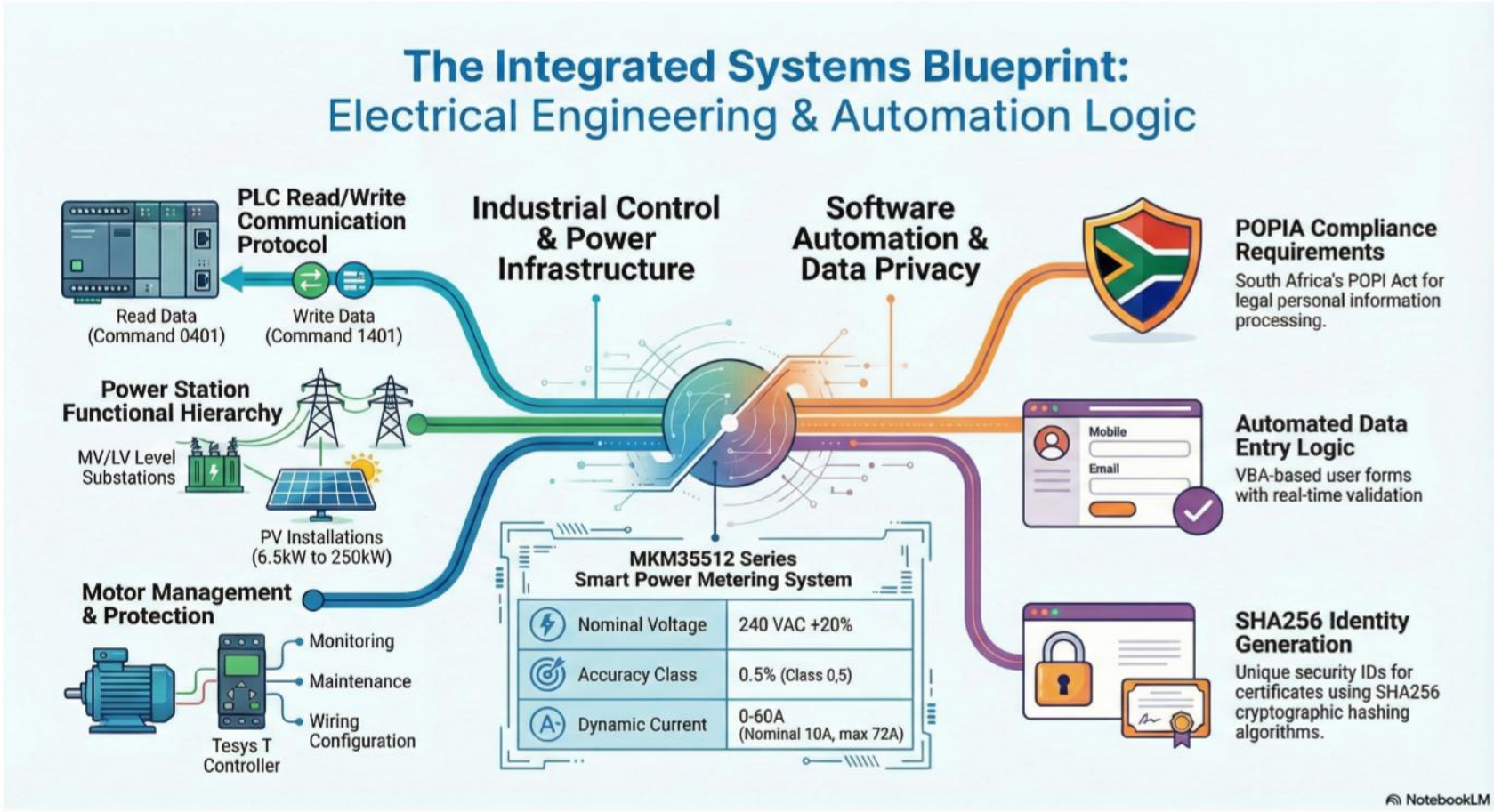
The Integrated Systems Blueprint:
Electrical Engineering & Automation Logic
PLC Read/Write Communication Protocol
Read Data (Command 0401)
Write Data (Command 1401)
Industrial Control & Power Infrastructure
Software Automation & Data Privacy
POPIA Compliance Requirements
South Africa's POPI Act for legal personal information processing.
Power Station Functional Hierarchy
MV/LV Level Substations
PV Installations (6.5kW to 250kW)
Mobile
Email
Automated Data Entry Logic
VBA-based user forms with real-time validation
Motor Management & Protection
Monitoring
Maintenance
Wiring Configuration
Tesys T Controller
MKM35512 Series
Smart Power Metering System
Nominal Voltage
240 VAC +20%
Accuracy Class
0.5% (Class 0,5)
Dynamic Current
0-60A (Nominal 10A, max 72A)
SHA256 Identity Generation
Unique security IDs for certificates using SHA256 cryptographic hashing algorithms.
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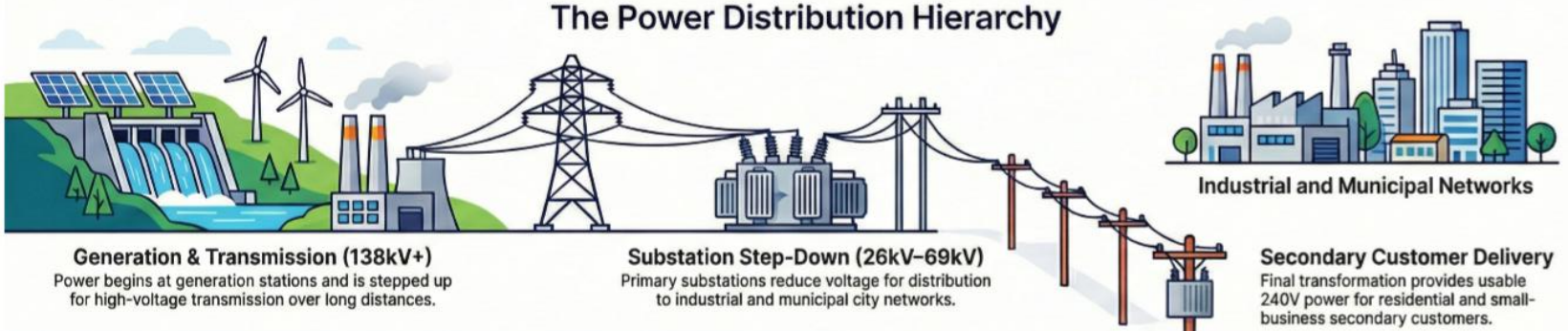
Smart Grid Architecture: From Generation to Intelligent Automation

The Power Distribution Hierarchy



Generation & Transmission (138kV+)
Power begins at generation stations and is stepped up for high-voltage transmission over long distances.

Substation Step-Down (26kV–69kV)
Primary substations reduce voltage for distribution to industrial and municipal city networks.

Industrial and Municipal Networks

Secondary Customer Delivery
Final transformation provides usable 240V power for residential and small-business secondary customers.

The Smart Meter & PLC Ecosystem

Three-phase meters utilize 24-bit ADCs to maintain Class 0.5 (0.5%) accuracy.

The central processor manages 512KB flash memory, RTC, and tamper detection interfaces.

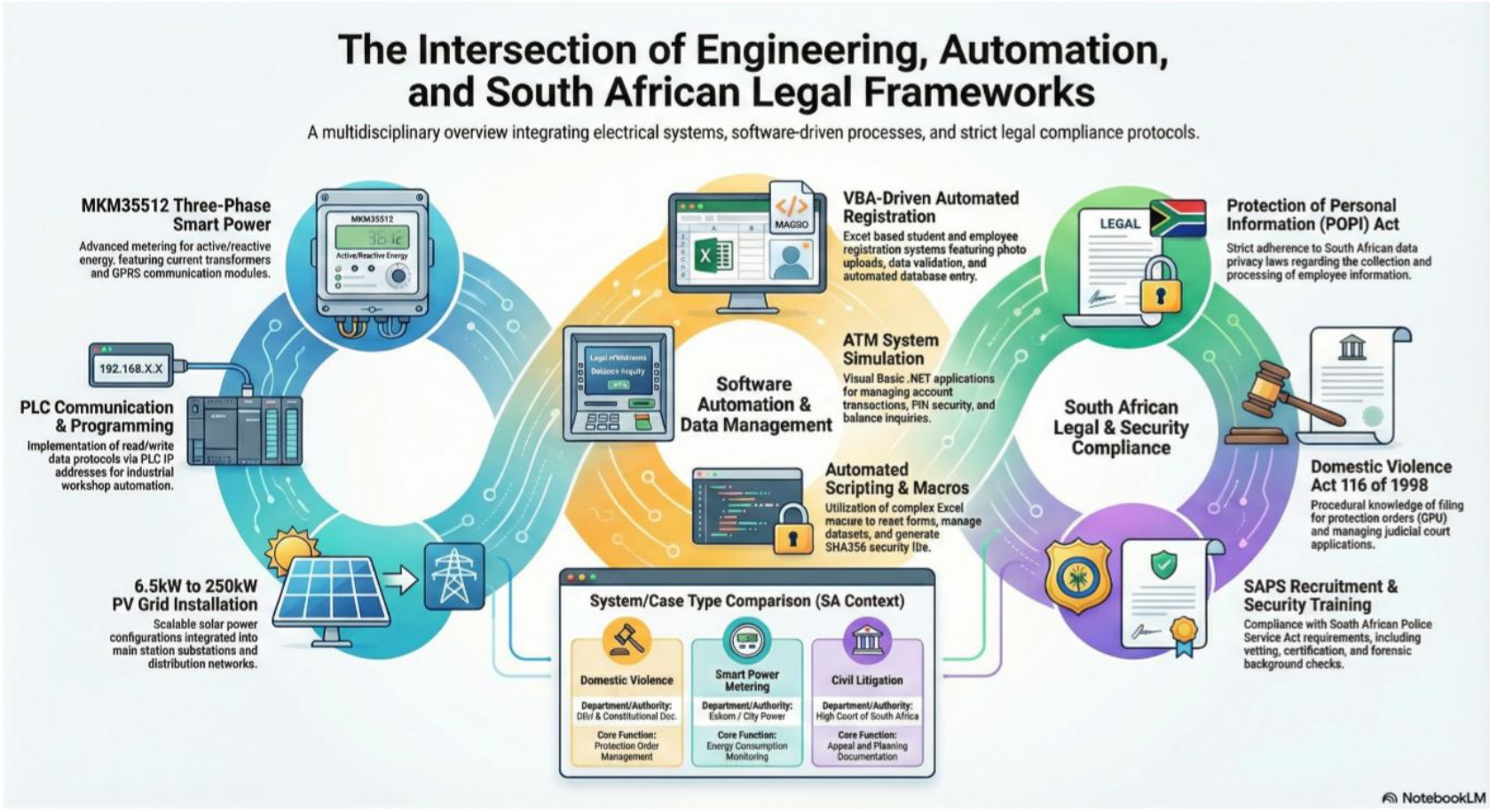
Automated PLC Control

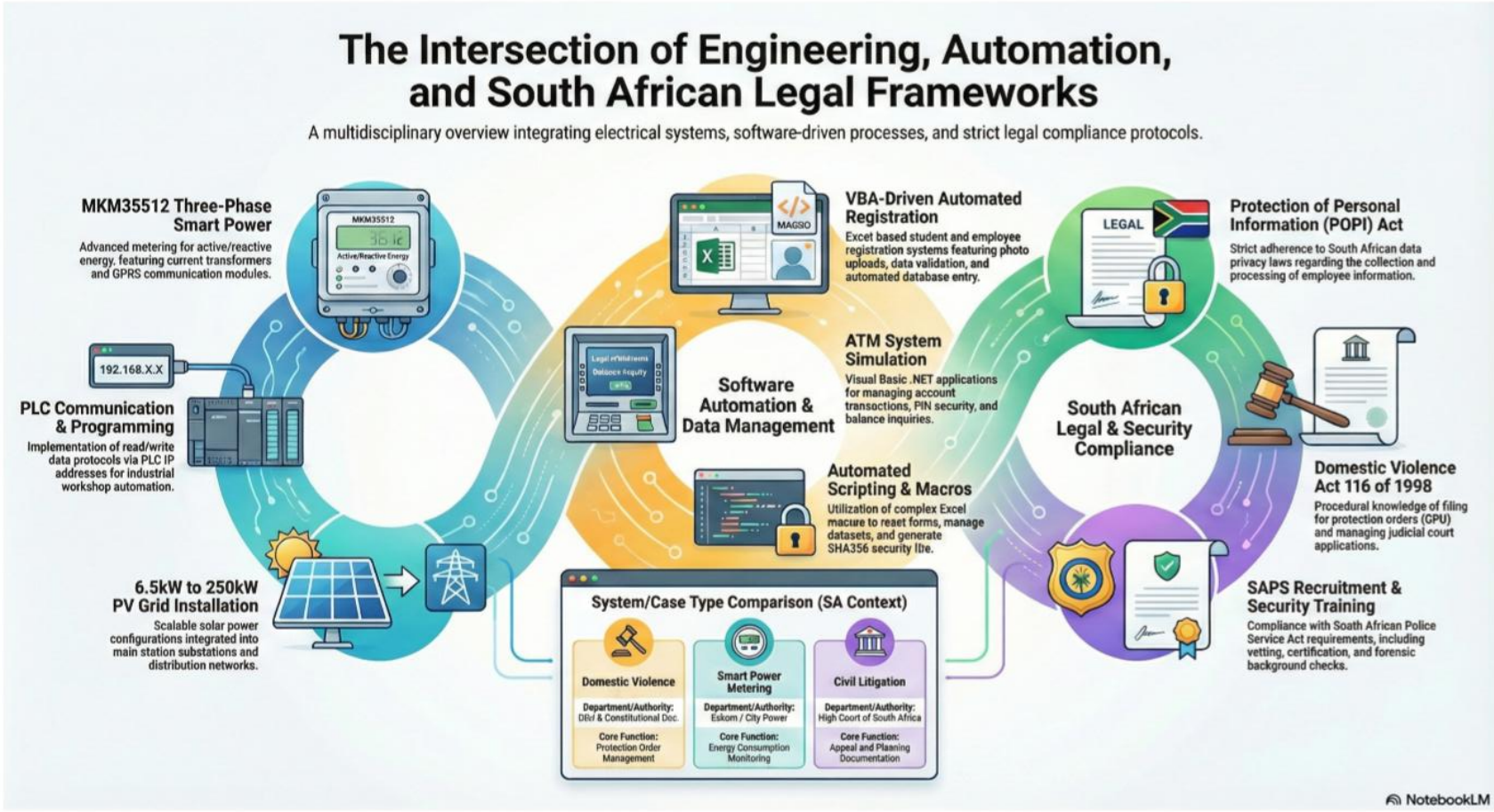
Standard Three-Phase Smart Meter Specifications

Nominal Voltage	240 VAC (+20% Tolerance)
Current Range	0-60A (Dynamic peak up to 72A)
Nominal Frequency	50Hz (+5% Tolerance)

Programmable Logic Controllers (PLCs) use IP-based "Read/Write" commands to manage remote distribution tasks.

NotebookLM


The Intersection of Engineering, Automation, and South African Legal Frameworks
A multidisciplinary overview integrating electrical systems, software-driven processes, and strict legal compliance protocols.
MKM35512 Three-Phase Smart Power
Advanced metering for active/reactive energy, featuring current transformers and GPRS communication modules.
MKM35512
Active/Reactive Energy
192.168.X.X
PLC Communication & Programming
Implementation of read/write data protocols via PLC IP addresses for industrial workshop automation.
6.5kW to 250kW PV Grid Installation
Scalable solar power configurations integrated into main station substations and distribution networks.
VBA-Driven Automated Registration
Excel based student and employee registration systems featuring photo uploads, data validation, and automated database entry.
MAGSO
ATM System Simulation
Visual Basic .NET applications for managing account transactions, PIN security, and balance inquiries.
Software Automation & Data Management
Automated Scripting & Macros
Utilization of complex Excel macros to reset forms, manage datasets, and generate SHA256 security IDs.
System/Case Type Comparison (SA Context)
Domestic Violence
Department/Authority: DBV & Constitutional Dec.
Core Function: Protection Order Management
Smart Power Metering
Department/Authority: Eskom / City Power
Core Function: Energy Consumption Monitoring
Civil Litigation
Department/Authority: High Court of South Africa
Core Function: Appeal and Planning Documentation
Protection of Personal Information (POPI) Act
Strict adherence to South African data privacy laws regarding the collection and processing of employee information.
LEGAL
South African Legal & Security Compliance
Domestic Violence Act 116 of 1998
Procedural knowledge of filing for protection orders (CPU) and managing judicial court applications.
SAPS Recruitment & Security Training
Compliance with South African Police Service Act requirements, including vetting, certification, and forensic background checks.
NotebookLM


The Intersection of Engineering, Automation, and South African Legal Frameworks
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Active/Reactive Energy
192.168.X.X
PLC Communication & Programming
Implementation of read/write data protocols via PLC IP addresses for industrial workshop automation.
6.5kW to 250kW PV Grid Installation
Scalable solar power configurations integrated into main station substations and distribution networks.
Software Automation & Data Management
VBA-Driven Automated Registration
Excet based student and employee registration systems featuring photo uploads, data validation, and automated database entry.
MAGSO
ATM System Simulation
Visual Basic .NET applications for managing account transoctions, PIN security, and balance inquiries.
Automated Scripting & Macros
Utilization of complex Excel macure to reaet forms, manage datasets, and generate SHA356 security Ibe.
South African Legal & Security Compliance
LEGAL
Protection of Personal Information (POPI) Act
Strict adherence to South African data privacy laws regarding the collection and processing of employee information.
Domestic Violence Act 116 of 1998
Procedural knowledge of filing for protection orders (GPU) and managing judicial court applications.
SAPS Recruitment & Security Training
Compliance with South African Police Service Act requirements, including vetting, certification, and forensic background checks.
System/Case Type Comparison (SA Context)
Domestic Violence
Department/Authority: DBrl & Constitutional Dec.
Core Function: Protection Order Management
Smart Power Metering
Department/Authority: Eskom / City Power
Core Function: Energy Consumption Monitoring
Civil Litigation
Department/Authority: High Coort of South Africa
Core Function: Appeal and Plaaning Documentation
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Navigating Protection: A Guide to South African Legal & Data Compliance

The POPI Act: Data Privacy Compliance

Fines up to **R10 Million**

Non-compliance with POPIA can result in severe financial penalties or up to ten years' imprisonment.

8 Lawful Processing Conditions

Information must be collected for explicit, specific, and lawful purposes only.

Information Officer Requirement

Every organization must appoint and register an information Officer to oversee compliance.

Personal Safety & Protection Orders

Domestic vs. Harassment Orders	Domestic Violence Order (DPO)	Harassment Order (HPO)
Relationship	Must be in a domestic relationship	No relationship required
Abuse Pattern	Requires repetitive actions/pattern	First offense is sufficient
Residence	Often applies to shared residences	Often applies to neighbors or strangers

Mandatory Personal Service

Protection orders only become legally effective once personally served by the Sheriff or Police.

Reporting Crimes via Form 2

Applications must be supported by a detailed affidavit setting out incidents and dates.

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Integrated Engineering and Legal Compliance Framework

Industrial Automation and Software Design

PLC Communication and Programming

Establishing data flow through IP addressing and command strings (e.g., 0401 read/1401 write).

Automated Management via VBA

Utilizing Excel and VBA for dynamic databases, registration forms, and automated data entry.

Integrated Electrical Protection

Monitoring PV installations (6.5 to 250kW) and motor management via controller configurations.

Three Phase Smart Power Metering Specs

Nominal Voltage:	240 VAC ±20%
Current Range:	0-60A (72A dynamic max)
Accuracy Class:	0.5 (0.5%)

Legal Framework and Data Compliance

POPIA Compliance Standards

Managing personal information processing for employees and clients under South African privacy law.

Domestic Violence Act (116 of 1998)

Navigating the legal process for obtaining interim and final Protection Orders.

Judicial System Integration

Managing case numbers (e.g., URN 4702024FCV001046) through the Department of Justice online portals.

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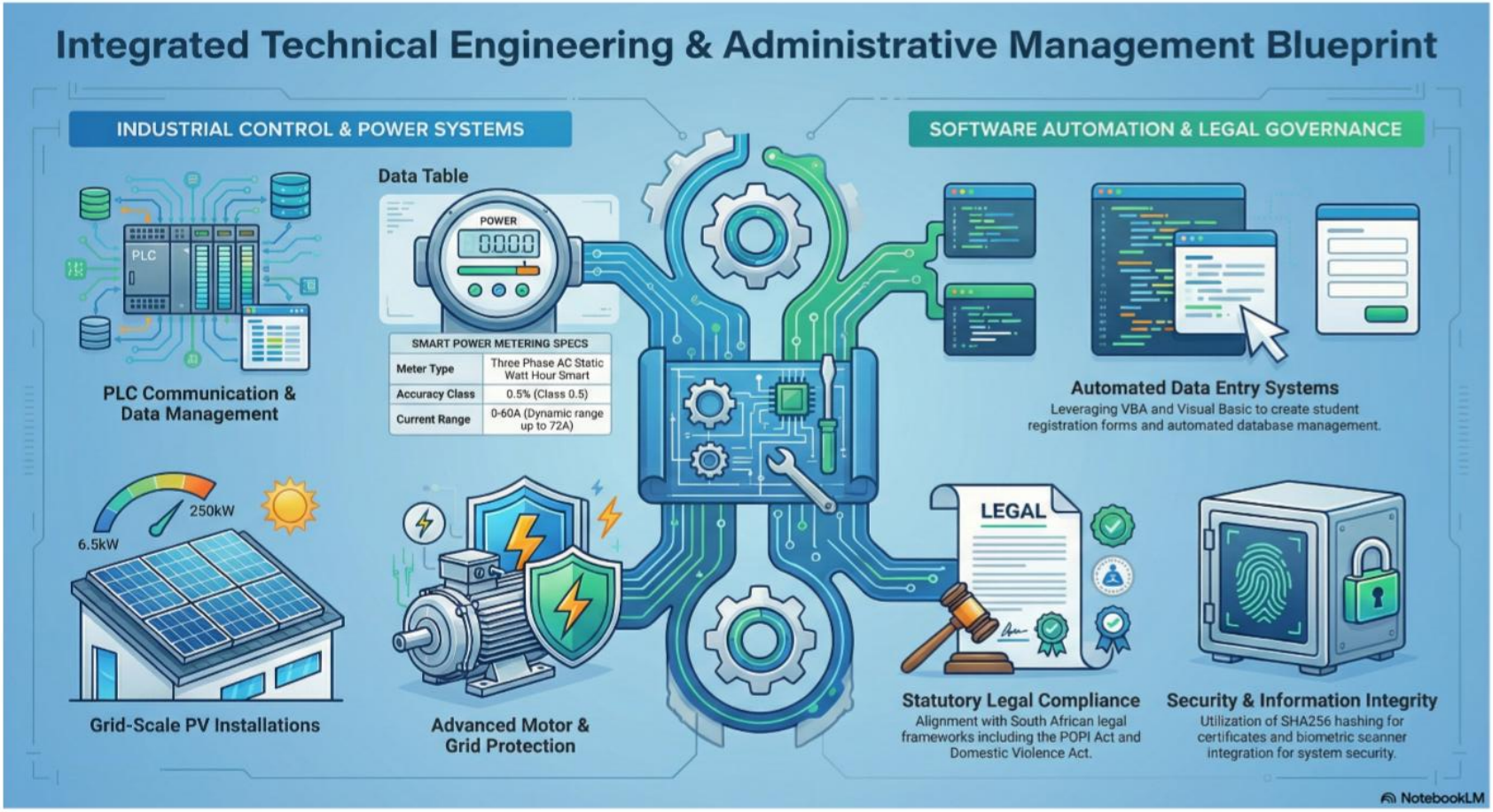
Integrated Technical Engineering & Administrative Management Blueprint
INDUSTRIAL CONTROL & POWER SYSTEMS
SOFTWARE AUTOMATION & LEGAL GOVERNANCE
PLC
PLC Communication & Data Management
Data Table
POWER
SMART POWER METERING SPECS
Meter Type
Three Phase AC Static Watt Hour Smart
Accuracy Class
0.5% (Class 0.5)
Current Range
0-60A (Dynamic range up to 72A)
Automated Data Entry Systems
Leveraging VBA and Visual Basic to create student registration forms and automated database management.
250kW
6.5kW
Grid-Scale PV Installations
Advanced Motor & Grid Protection
LEGAL
Statutory Legal Compliance
Alignment with South African legal frameworks including the POPI Act and Domestic Violence Act.
Security & Information Integrity
Utilization of SHA256 hashing for certificates and biometric scanner integration for system security.
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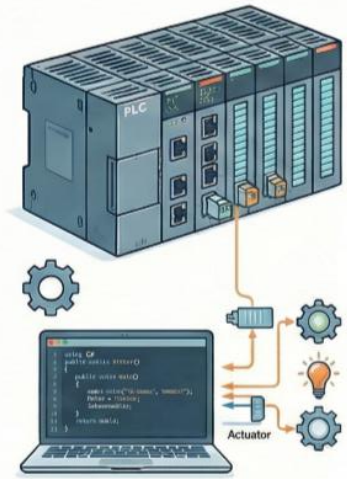
The Digital Engineer: Integrating Code and Power Systems

POWER SYSTEMS & HARDWARE CONTROL

PLC: The Brain of Industrial Automation



Using custom C# and other code to read data from and write commands to PLCs

Designing a Three-Phase Smart Meter

Integrates an MCU, GPRS module, and sensors for real-time, remote energy monitoring.

Advanced Motor Management

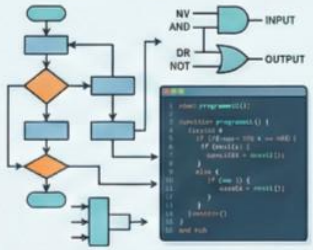
Utilizing motor controllers for installation, commissioning, maintenance, and complex wiring diagnostics.

SOFTWARE & DATA APPLICATION

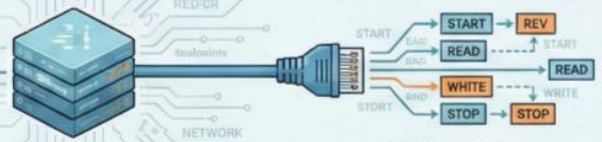
Custom Software for System Interfacing

Developing applications in Visual Basic and VBA for data entry, calculation, and system management.

Foundation in Software Engineering Principles



Applying core concepts like flow charts, logic gates, and structured programming.



Crafting PLC Communication Protocols

Building specific command strings to read from and write data to PLCs.

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